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Patten Paper Co. Readjustments Announced

Relief of Fiscal Burdens Planned to Enable Present Favorable Operating Status and Profit Record to be Maintained—Friendly Receivership Appointed to Protect Water Power, Mill and Equipment—Judson G. Rosebush, President of Company, Retires as Manager of Northern Paper Mills, to Devote Entire Time to Organization

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, WIS., October 7, 1935—Readjustments which it is anticipated will relieve fiscal burdens of the Patten Paper Company, Ltd., Appleton, Wis., and enable its present favorable operating status and profit record to be maintained were announced last week.

The first step was the retirement of Judson G. Rosebush as general manager of the Northern Paper Mills, Green Bay, Wis. He will now devote his entire time to the direction of the Patten Paper Company, Ltd., of which he has been president for many years. His successor at the Northern mills has not yet been announced.

Another step in the readjustment program was an order granted by Judge Edgar V. Werner in the circuit court at Appleton, Wis., creating a friendly receivership to protect the water power, mill and equipment of the Patten company while a program is being worked on behalf of its creditors. The petition for receivership was filed by the Aid Association for Lutherans, an insurance organization holding $75,000 in Patten notes. William H. Zuehlke, treasurer of the Aid Association, was appointed as receiver. The mill will be operated under his supervision with the Rosebush management in charge.

Accompanying these developments was the resignation of Adam C. Remley as vice-president and general manager of the Patten company. This step was taken voluntarily by Mr. Remley to reduce the executive personnel for purposes of economy during the readjustment. Mr. Remley has other positions under consideration but has not announced his plans for the future.

Difficulties of the Patten company developed several years ago when its funds were invested to acquire the controlling interest in the Northern Paper Mills, and to purchase the Outagamie Paper Company mill at Kaukauna, Wis. Heavy bank loans were negotiated by the Patten company to accomplish this expansion. When the Northern mills discontinued dividends, the Patten earnings were not sufficient to meet the interest payments and reduction of principal. The Patten company, virtually in the role of a holding company, thus became a victim of the economic depression so far as its stock transactions were concerned, but not as an operating company.

Plans announced by Mr. Rosebush are to sell the Outagamie mill at Kaukauna at an early date. This mill had not shown a profit for the last six years.

The Patten mill, under the management of Mr. Rosebush as president and Mr. Remley as general manager, has made an excellent operating showing. It has been going through a transition from newsprint to higher grades, and has successfully captured an extensive market for its new lines. This is evidenced by its yearly increase in tonnage of Patten Mimeo Bond. The mill produced 420,000 pounds of mimeograph in 1928, and for the year 1934 had stepped the volume up to 4,220,000 pounds. This is believed to be the largest tonnage of mimeograph on the market today. The Patten mill has shown a consistent net profit. Ample orders are now on its books to keep the mill operating on its usual scale.

Northwest Superintendents Convene

Levi LaRoux, of Cloquet, Minn., was elected chairman of the Northwest division of the American Paper and Pulp Mill Superintendents Association at its fall convention at Green Bay, Wis., September 27 and 28. He succeeds M. J. Ketter, general superintendent of the Hoberg Paper and Fibre Company, Green Bay.

Others elected are: Wesley Youngchild, Nekoosa-Edwards Paper Company, Port Edwards, Wis., first vice-chairman; Rudy Meyer, Badger Paper Mills, Inc., Peshtigo, Wis., second vice-chairman, and C. I. McNair, Cloquet, Minn., secretary.

More than 200 mill executives and their wives attended, and were welcomed at the opening session by John V. Diener, Mayor of Green Bay. Group discussions of problems were held. The paper section was led by John Cornell, New York, vice-president and advertising manager of *The Paper Mill*, and the sulphite group by L. J. McNamara, Green Bay.

An address on waste problems was given by J. M. Holderby, of Madison, Wis., assistant sanitary engineer of the Wisconsin State Board of Health. He predicted that in the near future public sentiment will demand the elimination of highly pollutional mill waste in its raw state from natural water sources.

At a noon luncheon on Saturday at Northland Hotel, H. J. Wintgens, vice-president and sales manager of the Hoberg Paper and Fibre Company, spoke on "A Sales

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Requests Reform In Newsprint Paper Industry

John Stadler, Consulting Engineer, of Montreal, Tells Canadian Cost Accountants That Business Is Basically Sound—Analyzes Difficulties Faced At Present Time—Declares Industry Requires Increase In Prices and Tonnage to Meet Future Consumption

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 7, 1935—John Stadler, consulting engineer, of Montreal, and long a leading figure in the newsprint industry of Canada, gave an interesting address on the newsprint industry at a meeting here on Friday of the Canadian Society of Cost Accountants. He argued that the industry is basically sound, but that reform was necessary if it were to be anything but "the plaything of the few to the disappointment of the many."

Time To Call off Poker Game

"Is it not about time," he asked, "to call off the poker game, or is the game still worth the candle? The difficulty which the industry faces at the present time has been brought about to some extent by insufficient and disorderly development in the past, too rapid expansion during the present, and to a larger extent, to the absence of elementary co-operation. It is most unfortunate that such has been the case."

His observations, he said, would point almost diametrically opposite to what was now being practiced, stated that had a strenuous effort been made to expand manufacturing facilities in the past he believed the industry would have continued to expand normally and would have remained in the control of those who were fully qualified to manage it. The expansion which followed higher prices caused by increased demand "brought into the field certain parties with whom you, as accountants, have had much to do."

Dealing With the Present

Dealing with what he called the "present," the period from 1923 to the end of 1936, Mr. Stadler said the price of $75 a ton for newsprint in 1923 was the bugle call which started expansion culminating in amalgamation and, later, consolidation. At such a rate did expansion take place that, "it seemed to me that in the haste with which the newcomers tried to acquire the knowledge of paper-making, they made a slight mistake, and applied the water, so essential in the manufacture of paper, to the securities they issued as part compensation for the properties and their efforts."

Mr. Stadler said in his opinion they should present the real facts about the industry no matter how bad they looked so that the customers might be induced again to co-operate. "The industry, or rather those in control, must be brought to such a frame of mind, if any money is to be made, it will be in manufacturing and marketing of its product and not in the manipulation of the securities." He pointed out that 2,300,000 tons, equivalent to 60 per cent of the theoretical capacity of the industry, were in the hands of receivers, or had been reorganized at the end of 1934.

Increased Price and Tonnage Needed

"It is evident to anyone who studied the subject that the Canadian newsprint industry to become profitable, not only requires an increase in price, but also an increase in tonnage," the speaker proceeded. "There is no doubt in my mind that the increase in tonnage will be obtained by the natural tendency of consumption to increase, provided that confidence is restored.

"When the competitive capacity of the industry as a whole is brought to an efficient operating stage, it will pay a reasonable return on a legitimate investment, but it will never be able to pay on book values which are still in evidence with some corporations."

Woodfibre Plant Closed for Repairs

British Columbia Pulp and Paper Company has closed down its plant at Woodfibre, B. C., for several weeks to permit major repairs to be effected. The mill has a daily capacity of 110 tons. Both this plant and the company's other plant at Port Alice operated at full capacity in September, and the Port Alice plant will continue capacity production.

The company manufactures bleached and unbleached sulphite pulp, and a despatch from Vancouver relating to the temporary closing of the plant at Woodfibre says: "Bleached sulphite is a raw product for rayon. Exports of bleached sulphite to Japan, which has become a large manufacturer of rayon or artificial silk, have been cut off pending arrangement of the trade dispute between Canada and Japan. The company sold a good proportion of its output in Japan, although it was not entirely dependent upon this market."

The British Columbia Pulp and Paper Company has been operating under improved conditions for a considerable time past. The more stable prices which have prevailed in the past year or two improved earnings to the point where the company was enabled to bring its interest payments up to date on the first mortgage bonds by November 1, 1934, and no interest is now overdue on these bonds. On May 1 a payment was made on the general mortgage bonds, being the first payment since May 1, 1932.

Westminster's Earnings

The Westminster Paper Company of New Westminster, B. C., had a net profit for the year ended July 31, 1935, of $12,968, after bond interest, depreciation and income taxes, compared with $25,687 in the previous year and with $21,578 in the year ended July 31, 1933.

Dividend distribution for the year under review was the same as has prevailed since October 1, 1932, amounting to 4 per cent on the common shares. Dividends required $19,116, making it necessary to draw on surplus account to the extent of $6,148. This left surplus as of July 31, 1935, at $23,941 as against $30,189 a year previously.

Sales for the year ended July 31, 1935, totalled $558,845, against $569,798 in the previous year. Discounts and allowances amounted to $16,237, as against $19,261 and of sales to $398,291 as against $393,126, leaving gross profit of $144,317 as against $157,412. Miscellaneous income, representing interest on the company's investment of $100,000 in the 6½ per cent first mortgage bonds of Pacific Coast Paper Mills of Bellingham, amounted to $6,175, bringing gross income to $150,492 as against $163,587 a year previously when the miscellaneous income was the same.

The company's plant has a capacity of 50,000 pounds per day of tissues, towels, napkins, wax paper, printed fruit wraps and other specialties.

Demand for Paper Fairly Good In Chicago

Persistent Request Experienced for Various Grades of Fine Paper—Bond and Ledger Papers Display Strength—Demand for Book and Cover Papers More Brisk—Kraft Wrapping Paper Continues Firm—Groundwood Papers Hold Up Well

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 7, 1935—The Chicago paper market this week gave evidence of the strengthening influence of the N. P. T. A. meetings, according to local executives who pointed to an ever broadening effort to retain a firm market structure. Markets here were fairly good, although reacting slightly to the general business uncertainty. There still remains a strong feeling that prices are likely to move forward rather than retract and strength in specific markets seems to bear out this contention.

The recent readjustment in the sulphite bond market seems to have had a salutory effect on the market and while demand is only fair there is a better feeling reported. Bonds and ledgers in general showed an improved tone with demand responding to colder weather which is more in line with merchandising programs. Book and cover papers also found things a bit more brisk with the turn in the weather. Krafts continued to hold firm with local jobbers reporting a betterment in retail demand. Groundwoods held up well and seemingly continued to expand operations. Newsprint conditions were little changed. Waste papers remained comparatively inactive.

Salesmen's Annual Golf Outing

Despite the bitter cold weather the Midwest Division of the Salesmen's Association of the Paper Industry secured a good attendance for their annual golf outing held at Olympia Fields on September 27 in conjunction with the National Paper Trade Association sessions in Chicago. Again under the supervision of Ben Babbitt, golf chairman, the SAPEYES featured a luncheon, eighteen holes of competitive golf and an enjoyable and informal dinner in the evening.

Prize winners included a number of guests. They are as follows: low gross, Rod Hanson; low net, 17 and under, Harold Leahy; low net, 18 and over, Ralph Beckwith; low net, first nine, Jim Payne; low net, second nine, Hank Fulton; low putts, individual, Alec Shennan; low putts, first nine, Pete Servass; low putts, second nine, Henry Prosser. In the foursome events the low putts foursome consisted of Frank Stephens, Herb Larkin, Jim Marvin and Ray Pierce while the low net foursome was made up of Jim White, Cliff Pinkham, Bill Tilden and Ralph Beckwith. High putt honors went to Lou Sisson, J. H. Manske, Earl O'Connor and Arthur Brown while the high gross honors went to Bill Wrase, Hank Engel, John Bermingham and Charlie Gordin. Other honors went as follows: high gross, any hole, Bill Wrase; low gross par three holes, Frank Brucker; low gross, par fives, Courtney Reeves; high gross, Bob Warner; blind bogey, Paul Wesco. Winners in the 36-hole events were Fred Huff, low gross; Charles Shepherd, low net 17 and under; Herman Berge, low net, 18 and over. Morning event prizes were won by Dick Cook, R. E. Johnson and Bill Shea.

Social Security Problems

Two matters relating to legislative affairs are getting a lot of attention from the paper industry in Illinois. The first is the "Wagner Trade Disputes Act" which is being studied carefully by those manufacturers and employers of labor who realize that, irrespective of the eventual unconstitutionality of the Act, its provisions should be adhered to, particularly with respect to the filing of reports to the Labor Board. The other problem centers around a special session of the Illinois Legislature expected this month to consider the entire Social Security Program for the State. This is a move which will bring the matters of unemployment insurance and old age pension legislation to the attention of all employers. Paper trade executives are, within their respective associations, taking an active part in debating the best methods of handling unemployment insurance reserves.

News of the Industry

From the Swigart Paper Company comes the announcement of the addition of a new Strathmore product—a new unglazed finish in Strathmore parchment. The new paper has the same blue-white color, is manufactured of 100 per cent white rags and is reported to contain the same tear and folding strength. The announcement, giving actual specimens of the finish in letterhead production, is printed on Parchment, White, Unglazed, Substance 24. A complete price list for Strathmore Parchment and envelopes to match is included.

Running against the seasonal trend, the paper and printing industry in the seventh federal reserve district composed of Wisconsin, Michigan, Iowa, Illinois and Indiana, showed improvement in the number of wage earners and in earnings on August 15 as compared to the corresponding week in July. On the August date the 494 reporting firms showed 59,970 wage earners, representing an increase of 0.5 per cent over July, and earnings of $1,470,000, an increase of 1.5 per cent. This compared to a decline of 1.4 per cent in wage earners and an increase of 0.4 per cent in earnings for the ten manufacturing groups reporting.

From the offices of Bermingham & Prosser and Bradner Smith & Co. comes a distinctive folder printed on and describing Oxford Polar Dull Coated, a standard grade of the Oxford line. "Putting Sentiment to Work," is the title of the folder which has, for its front cover, a distinctive illustration of unusual color effect. Sentiment derived from the romantic, the archaic and the modernistic is well illustrated and discussed from the standpoint of "printing for atmosphere."

G. W. Gilkey Injured in Auto Accident

KALAMAZOO, Mich., October 7—1935. George W. Gilkey president and general manager of the Michigan Paper Company, Plainwell, Mich., suffered severe injuries in an automobile crash near Howard City, Mich., on October 3. Mr. Gilkey in company with Dr. C. J. Woodams also of Plainwell were returning from a hunting trip in Northern Michigan when the accident occured. A truck which was going in the opposite direction turned out to pass a car and hit the Gilkey car head on. Mr. Gilkey sustained a broken and dislocated hip, a broken ankle and facial lacerations. Dr. Woodams also received a fractured hip, broken ankle, a spine injury and facial lacerations. Both men were brought to the Butterworth Hospital in Grand Rapids, Mich. Their condition late Friday night was reported as good as could be expected.

Provincial Paper Mill Improvements Speeded

New Modern Fourdrinier Placed Into Operation to Increase Production and Raise Quality of Paper—Other Improvements Include Installation of Two New Barking Drums, Increased Groundwood Screen, Wood Handling Equipment Remodelling, Etc.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 7, 1935—A program of improvements which has been under way at Provincial Paper Ltd., mill at Port Arthur since May last neared completion this week, when a new Fourdrinier, one of the most modern of its kind, was placed in operation. The new machine, which is used in the first step of making paper after the pulp leaves the beater, replaces one which was installed in 1922. Designed to increase the production and raise the quality of the paper, it will put the No. 1 machine into the most modern class. The Fourdrinier was built by the Dominion Engineering Works, Montreal, and was installed under the supervision of W. Tonkin, of Montreal. During its installation the No. 1 machine was down for twelve days.

In addition to the Fourdrinier, improvements included remodelling of the wood-handling equipment; installation of two new barking drums; increased groundwood screen and construction of a larger loading shed for paper. The work, with other minor improvements designed to put all equipment of the mill into first class condition, has given employment to forty mechanics and laborers since May.

At present Provincial is turning out its capacity production of 100 tons of book paper per day, A. G. Pounsford, general manager, said. There are on hand at present sufficient orders to keep the mill operating at capacity for some time, he said, and the recent operations and improvements have resulted in a considerable increase in the consumption of electric power by the plant. Four hundred men are employed at the plant at present.

Provincial Paper Ltd. will employ 400 men in the woods operations this winter, Mr. Pounsford said, with 120 men in each of the three camps, cutting an estimated total of 50,000 cords.

Paper Mills Exhibit

Sponsored by the Stationers' Guild of Canada, manufacturing stationers, and many of the paper industry from various parts of Canada, gathered at the Royal York Hotel, Toronto, on October 1 for what turned out to be a very successful three-days convention. A number of papers were read and addresses given on various phases of manufacture and distribution of stationery merchandise and there were a number of interesting discussions.

During the three days the convention hall of the hotel was filled with displays by various manufacturing stationers and paper firms, among them being Appleford Paper Products, Hamilton, Ont.; Barber-Ellis Company, Toronto; Brown Bros., Toronto; Canada Pad and Paper Company, Toronto; W. J. Gage & Co., Toronto; National Paper Goods, Hamilton; Rolland Paper Co., Montreal; Howard Smith Paper Mills, Montreal, and Warwick Bros. and Rutter, Toronto.

New Peak for Newsprint

The Dominion Bureau of Statistics at Ottawa has just issued a report showing production in the pulp and paper industry in 1934 reached the highest point in three years. Total production at $152,647,756 compared with $123,415,492 in 1933 represented an increase of 23.30 per cent, while net production of $99,221,222 compared with $75,782,971 in 1933, up 30.93 per cent. Exports of paper and paper goods during 1934 were valued at $87,208,721 compared with $72,396,132 the previous year. Canada's newsprint exports, estimated in 1934 at $82,078,659 are second in value only to the nation's wheat exports and are greater than the newsprint exports of the rest of the world.

Pulpwood for Mersey Plant

Stretching along the Merigomish harbor shore for one-quarter mile, 5,000 cords of pulpwood are awaiting shipment to the Mersey Pulp and Paper Company, Liverpool, by McDonald Bros., of East Pictou. Cut in pulpwood lengths, the lumber represents the season's pulp production of East Pictou county and will be the first to be shipped by water from Merigomish in a number of years. Several trips will be made by the steamer before all is transported to Liverpool, and some sixty-five men will be employed in the loading operations. The steamer will be forced to lay off-shore and the wood floated out in rafts. The marked increase in the pulpwood industry is attributed jointly to "Bill 151" of the Harrington Government and the Ottawa trade Agreements, which since their institution, have been the deciding factor in securing Australian markets for Canadian newsprint.

May Reopen Greensville Paper Plant

Criticism of the attitude of the town of Dundas, Ont., towards the Greensville Paper Mill was made by Gerald Shipman, of London, an official of the company, who visited the town to treat with civic officials regarding the possibility of re-opening the mill. The mill has been shut down since June last. It was learned that the company's written application to resume operations will be considered at a meeting to be held this month. On complaint of the medical health officer last June the company was fined $100 for polluting the stream and the plant was then shut down.

Australia Opens Her Markets

The Department of Trade and Commerce at Ottawa has made public cabled advices from Melbourne showing the Australian Government had made important abolitions and reductions of primage duties on numerous Canadian products exported to the Antipodes, including newsprint and printing papers. Removal of these duties on these and other items will enable them to enter Australia free, as the Commonwealth assesses no other taxes on them. Annual value of the goods shown in the schedule published in last year's Canadian export figures are: newsprint, $3,804,751; book paper, $124,924. Chief benefit to Canada was seen in the free entry of its newsprint to Australia, as the customs rate on foreign newsprint is $15.88 a ton in Canadian funds.

Fort Frances Paper Mill Reopens

With the No. 2 machine having started up last week the Fort Frances mill of the Fort Frances Pulp and Paper Company, is once more operating at full capacity. Orders for newsprint are said to be coming in more freely than for some time. No statement is made as to whether this is a permanent or temporary condition but it is generally believed that all machines will be running until the first of the year at least. No. 6 machine started last fall for the first time in several years, and was during the spring for a time alternating with No. 5.

Philadelphia Paper Industry Outlook Bright

Improvement In Both Fine and Coarse Paper Divisions Has Solid Economic Basis—More Conservative Observers Predict Gradual Rise In Business Volume Until Next Spring, At Least—Paper Stock Situation Practically Unchanged

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 7, 1935—Reports from various sources in the fine and coarse paper divisions indicate that business prospects are brighter now than at any time since the middle of 1933, when there was a more or less short-lived rise in the paper trade. It is contended that the main point of difference between that period and this is that paper merchants here feel that the earlier rise was founded more or less upon the artificialities of a widespread experimentation, while the present rise has a solid economic basis under it. Even the more conservative observers in the trade are now predicting a gradual rise in business volume until next spring. So far as your correspondent could ascertain there is no significance in making next spring the limit of this encouraging prophesy; this limitation seems to be just part and parcel of the general disinclination to look too far ahead.

At the headquarters of Garrett-Buchanan Company, Edward A. Keller, vice-president and general manager, stated that business for the month of September was 25 per cent ahead of September, 1934.

No changes of any moment are recorded in the waste paper industry. A fairly active demand for the high and medium grades still continues, with the trade expressing dissatisfaction in the market situation in the low or bulky descriptions, mixed and folded news in particular. Apparently, packers are eager for orders for mixed news and some pressure to effect sales was noted, reflecting the slowing up of consuming mill purchasing and operations.

Association Activities

The regular quarterly meeting of the Board of Governors of the Paper Trade Association of Philadelphia will be held this coming Wednesday, October 9, at 12:30 with lunch in the Down Club Club. Following the Board of Governors meeting, members of the fine paper division will assemble at 2:30 in the headquarters of the association at the Drexel Building, to hear the report of Norbert A. Considine, delegate to the convention of the National Paper Trade Association held in Chicago from September 23 to 26.

The Philadelphia Paper and Cordage Association will have its regular monthly meeting next Friday at noon in the Adelphia Hotel. Harry S. Platt, president of the association, states that there will be a round-table discussion of plans for the association's Christmas party. E. K. Lay, chairman of the Entertainment Committee, will appoint sub-committees who will go to work to make this Christmas party outstanding in the annals of the association.

The Paper and Bag Institute met at the Broadwood Hotel on Monday evening last, September 30, with upwards of fifty jobbers in attendance. Timely topics were discussed by Charles Resnick, who is acting chairman of the association. Gene Bavitt, of American Bag Company; Charles Mather, of Mather Paper Company; and Henry L. Adler, of Huff Paper Company, spoke on the urgency of jobbers to adopt fair business practice. Arthur H. Lewis, secretary and treasurer of the association, announces that the next meeting of the association will be held Monday, October 14, at 1106 Franklin Trust Building.

The sixth and final tournament of the Graphic Arts Club will be held tomorrow at Aronomink Country Club. Quite a number of those in the paper trade will participate, and a number of prizes will be awarded. Besides the John C. Meyer Memorial Cup, which is awarded each year to the member who makes the lowest net score for any five of the scheduled tournaments, the following prizes will be awarded for the 1935 season: Graphic Arts Cup, awarded by Frederick S. Balch, of the Schuylkill Paper Company, to the member who makes the lowest single net score in any of the scheduled tournaments of each season. The winner is given possession of the cup for one year and his name engraved on it. The Philadelphia Paper Trade's Cup awarded to the member making the lowest net score in the regular scheduled tournaments of the season; the winner is given possession of this cup for one year and his name engraved on it. He also receives the William P. Squibb Award, which consists of a special prize donated by William P. Squibb. In addition to these there is a set of Three Woods, donated by John H. King to the member whose handicap, as shown by the total score of all scheduled tournaments, is most nearly correct when compared with par for the course's plate. William A. Meeks, executive secretary of the Typothetae of Philadelphia, and secretary of the Graphic Arts Club, states that registrations received to date for this final event have gone far beyond their expectations.

News of the Industry

Morgan H. Thomas, president of the Garrett-Buchanan Company, is among the distinguished participants in the annual golf tournament of the Seniors Golf Association being held at the Poconos. Mr. Thomas has purchased a property known as Glen Knoll at Bethayres, containing forty acres of land together with a mansion thereon. Mr. Thomas originally purchased sixteen acres but recently acquired twenty-four additional acres, part of which will be devoted to a deer preserve.

The Bentley Paper Company, Ledger Building, Seventh and Chestnut streets, has added to its already extensive line of high grade papers, Merit Bond, manufactured by Carew Manufacturing Company, South Hadley Falls, Mass. In Merit Bond, which is the leader in low price rag content papers, there is no stinting of Carew craftmanship; it has all the earmarks of Carew's better grades but it is made to satisfy a demand where quality is essential but at a low price. Carew Merit Bond has that something carated into it that can only be found when employing the old-time methods of paper making. It comes in white and tusk.

Hughes with Parsons & Whittemore

Harold Hughes, formerly manager of the Pulp and Paper Trading Company's Paper Export Department, has associated himself with the firm of Parsons & Whittemore, Inc. in a like capacity. Parsons & Whittemore, Inc. is one of the oldest paper exporting firms, with a long and honorable record for correct business methods and an experience world-wide.

New England Paper Mills Are More Active

Plants Manufacturing Kraft, Tissue and Waxed Papers Reported Getting Behind Orders—Demand for Various Grades of Fine Paper Improves Slightly—Box Board Business Fairly Satisfactory—Outlook for Paper Stock Favorable

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 7, 1935—The Boston paper trade continued generally optimistic last week. It is intimated that paper mills supplying houses here are becoming busier. Mills making kraft, tissue and waxed paper are getting behind on their orders, according to the trade. The fine paper market held up well, improving slightly. At the office of a large manufacturer of fine paper it was said that conditions have been better since the middle of September. Fancy papers were in good demand. With Boston retail trade more active since October 1, the wrapping paper market has been slowly improving. Box board business continued fair, although somewhat spasmodic.

Paper stock held steady in most grades during the week, with the prospect favorable. Mills have become well supplied with waste paper, however, so that the price of mixed papers has been cut to .25 @ .27½ from .27½ @ .30. Bagging continued firm, and in fact is becoming stronger. It is reported that the stronger situation in bagging is due to the manipulations of speculators who are buying now for fall and early winter shipments. They are reported to have been obliged to buy at a loss in the early part of 1935. It is stated in the trade that "it looks as if things would be getting better in this line." In new domestic rags, silesias moved in fair quantities. In old domestic rags, roofing stock held at the same levels which prevailed a week ago. A smaller quantity of foreign rags has been imported of late, although some new silesias are expected to arrive before long.

Du Pont Distributors Expand

On account of expanding business the Boston office of the H. D. Catty-Franz Euler Corporation, distributors of Du Pont "Cellophane" and "Alcoa Foil," the latter made by the Aluminum Company of America, has been removed to larger quarters on the ninth floor at 47-49 Portland street. The office was formerly at 470 Atlantic Avenue, but at the new location the company has double the space it formerly occupied, and has added a new Seybold Dayton Cutting Machine to its equipment.

To afford the trade an opportunity for inspection of the new location, the company held open house Wednesday, September 25, from 5 o'clock until about 9:30 o'clock, with Charles Hallock Silkman, vice-president of the company, from the home office in New York, among those present. A delicious buffet supper was served by Sharaf, Inc., of which concern, Nat Sharaf, brother of Henry Sharaf, of the Sharaf Candy Company, East Boston, is a member. About forty attended. Among them were representatives of W. F. Schrafft & Sons, Inc., Boston; the Daggett Chocolate Company, Cambridge; the Pequot Mills; the Foxon Company, seal manufacturers, Providence, R. I.; two prominent bakers; Mr. Price, of the Boston office of the Du Pont Company; Miss Flood, of the George C. Miller Company, candy manufacturers, Boston, and a number of others, all of whom wished the company well.

Hugh D. Catty, president of the company, was unable to attend, on account of his leaving for England, his home country, planning to return by Thanksgiving.

Specializing in "Cellophane" and aluminum foil, the company had very attractive displays of both of these commodities, demonstrating their use with many articles of merchandise. In the show-case seen immediately on entering the office, was a complete line of merchandise, including confectionery, wrapped in "cellophane" and aluminum foil. In an inner room was a display of various articles wrapped in "Cellophane" and foil, with some contained in both. The articles in "Cellophane" included candy, sponge, table cover, bread sticks, facial tissue, powder puffs, moth balls, crackers, and other articles. A feature of the exhibit was a book of illustrations, issued by the Du Pont Company, entitled "Around the Clock," from breakfast to dinner, showing the use of "Cellophane" during the day, and including a scene in a store where dry goods were wrapped in "Cellophane." Scotch Cellulose Tape, made by the Minnesota Mining and Manufacturing Company, which needs no moistening for use on packages, was displayed.

Swatches and folders containing samples of "Cellophane" and Alcoa Aluminum Foil were available. A swatch of "Cellophane" showed seven samples of this product in transparent form, another of this material representing white silk, white linen and the following colors: Light blue, dark blue, amber, tango, pink, red, violet, green and light green. There were folders containing five samples of aluminum foil, recommended for hair waving and a sample of "Cellophane" for the same purpose. Other folders contained swatches of aluminum foil for bottle necks.

The new quarters include an ample stockroom, for the purpose of providing for an emergency, in case a hurry order is received. In this room are two cutting machines by which "Cellophane" or "Alcoa Foil" may be cut to any size desired.

The personnel of the Boston office, which serves New England, is composed of S. H. Maynard, manager; with Chester F. Clasby, office manager; Ethel A. Olsen, bookkeeper; Eleanor M. Behnke, stenographer, and George Sharpe, stockman and manager of the cutter department. Henry L. Johnson is in charge of the Springfield sales office, covering Western Massachusetts, Connecticut and Vermont. Hollis E. Ferguson is representative in Maine, New Hampshire and Rhode Island. Edward F. Melia is Eastern foil sales manager.

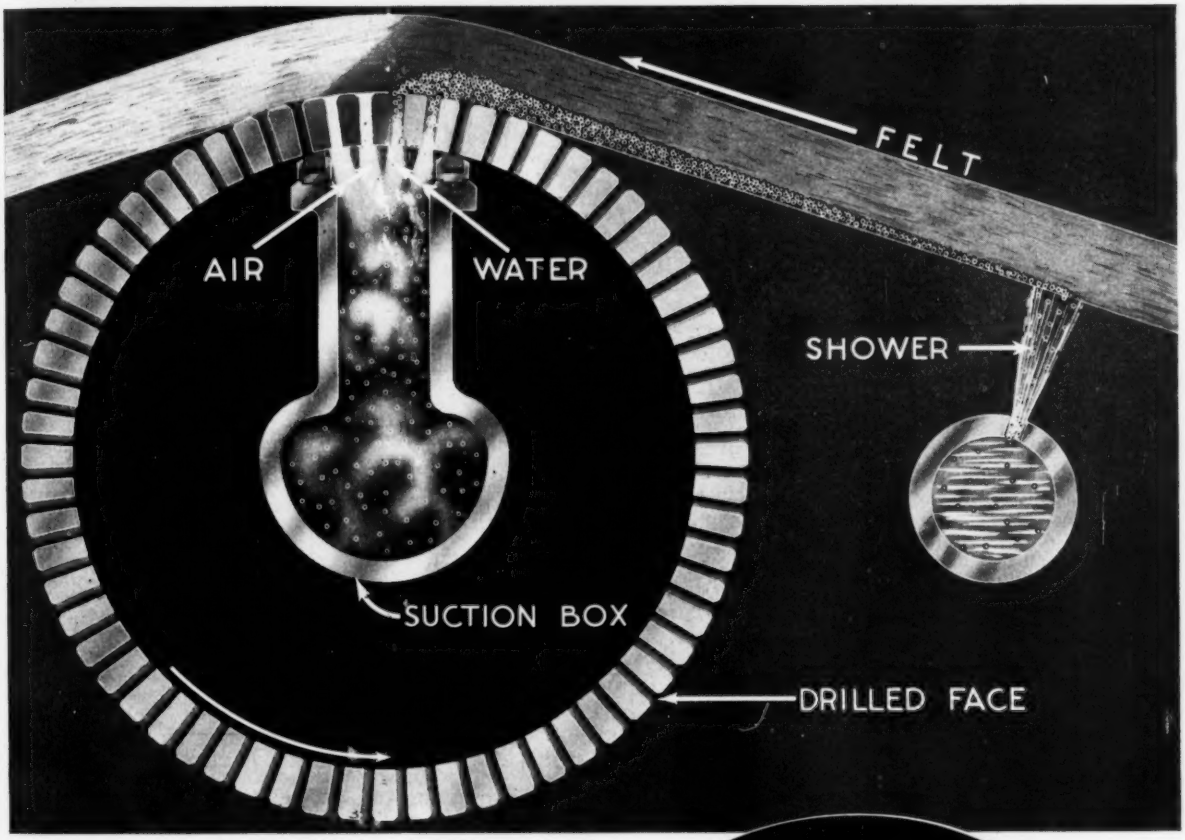
The head office of the company is at 421 Canal street, New York, with branch offices, besides Boston, in Chicago, Philadelphia and New Orleans.

News of the Industry

The exhibit of outstanding commercial printing on Warren's standard printing papers, held in the new exhibit hall of the Storrs & Bement Company from September 23 to Oct. 2, attracted many, who were warm in its praise.

Another exhibit, showing commercial art design, will be held at the same place, beginning today, October 7 and lasting till November 2. It will be in charge of Maurice Blackmur. The exhibit comprises original drawings and sketches by the following artists: Richard Bartlett, John Bliss, Charles Capon, John Cook, Roland F. Cosimini,

DOWNINGTOWN



Water from the shower thoroughly cleanses the sheet side of the felt and immediately passes into the suction roll with a large volume of air

CONTINUOUS FULL WIDTH FELT CLEANING

Travel of the felt turns the Downingtown Suction Felt Roll, thus there is no friction drag, no rubbing wear and no stretching, ironing or matting down of the felt. Felts cannot fill-up, therefore slowing down the machine, or shut-downs for washing and roping are unnecessary. Saves its cost in a few months' time because it extends felt life 25% to 100%; increases average production of machine; uses only one-tenth the power consumed by the drag of flat suction boxes. . . . Write for Catalog: The Downingtown Mfg. Co., Downingtown, Pa.

KEEP YOUR FELTS CLEAN WITH A SUCTION ROLL

Herman Dean, Charles Donelan, Frank Duffy, T. B. Hapgood, W. A. Dwiggins, Walt Harris, Ralph Heard, George Marsh, Kenneth E. Morang, Forrest Orr, Philip Palmstrom, Harold I. Smith and George Trenholm.

A luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association was held Thursday at the Boston Chamber of Commerce, with Frank H. Winter, vice-president of the Association in charge of that division, presiding. Secretary Cummings reported a very profitable month, with a general feeling of optimism. John H. Brewer, of Storrs & Bement Company, reported in regard to the convention of the National Association at Chicago, to which he was a delegate from the New England Association.

A luncheon meeting of the Wrapping Paper Division was held Tuesday, October 8.

Carter, Rice & Co., Corp., held a wrapping paper and twine meeting, Saturday, at the office of the company, with Frank H. Winter, sales manager, presiding. Streeter Bush, assistant sales manager, discussed the general line of wrapping paper products handled by the company. George Wright, of the twine department, covered the twine situation thoroughly.

The Carter Rice concern is stocking a new self seal envelope, made by the United States Envelope Company. The envelope has two flaps, one of which is pressed down on the other for sealing, requiring no moisture.

Otis Daniell, retired newsprint manufacturer, Tilton, N. H., was among those to attend the sixth annual northern dinner of the Committee of One Hundred, Miami Beach, Fla., at the Copley-Plaza Hotel, Thursday evening. The dinner, which was given last year at Rochester, N. Y., is an annual feature of a group of multimillionaires who hold regular Tuesday meetings at their clubhouse at Miami Beach.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 9, 1935—The Government has received bids at 4.93 cents per pound for 100,000 pounds of M. F. book paper as follows: Dobler & Mudge J. W. Butler Paper Company, Whitaker Paper Company Paper Corporation of the United States, R. P. Andrews Paper Company, Barton, Duer & Koch Paper Company, and Mathers-Lamm Paper Company.

Bids have also been received for 40,000 pounds of moss green desk blotting paper at 7.275 cents per pound from Barton, Duer & Koch Paper Company, and at 7.27 cents per pound from: R. P. Andrews Paper Company, Whitaker Paper Company, Old Dominion Paper Company, Graham Paper Company, J. W. Butler Paper Company, Mathers-Lamm Paper Company, Cauthorne Paper Company, Bulkley-Dunton & Co., George W. Millar & Co., J. R. Howarth Paper Company, L. Hyman & Sons, and Stanford Paper Company.

The Printing Office also received bids at 9.7 cents per pound for 16,000 pounds of enameled blotting paper from: L. Hyman & Sons, R. P. Andrews Paper Company, Old Dominion Paper Company, Whitaker Paper Company, Cauthorne Paper Company, Bulkley-Dunton & Company, George W. Millar & Co., Barton, Duer & Koch Paper Company, Virginia Paper Company, and Mathers-Lamm Paper Company.

The Government Printing Office received bids at 9.7 cents per pound for 4,000 pounds (25,000 sheets) of buff blotting paper from R. P. Andrews Paper Company, Whitaker Paper Company, Barton, Duer & Koch Paper Company, and Old Dominion Paper Company. The Mathers-Lamm Paper Company bid 7.76 cents per pound.

Weekly Production Ratio Report

Reports to the American Paper and Pulp Association show the following Over-All Production Ratios for the designated periods.

	Reporting Mills		Total Production Ratio
	Number	Capacity	
September, 1934	292–299	.....	59.4%
October, 1934	297–394	.....	64.7%
November, 1934	385–399	.....	61.7%
December, 1934 (a)	396–404	.....	62.1%
January, 1935	397–411	.....	65.8%
February, 1935	407–409	.....	70.0%
March, 1935	406–408	.....	70.5%
April, 1935	405–407	.....	70.0%
May, 1935	381–407	.....	69.4%
June, 1935	357–376	.....	72.3%
July, 1935 (b)	357–358	.....	67.8%
August, 1935	346–354	.....	70.9%
*Week ending September 7, 1935 (c)	335	117,620	77.1%
*Week ending September 14, 1935	341	143,849	72.7%
*Week ending September 21, 1935	262	103,511	74.8%

Statistics showing the number of mills reporting by ratio groups are given below:

	Number of Mills Reporting		
	Week ending		
Ratio Limits	Sept. 7, 1935	Sept. 14, 1935	Sept. 21, 1935
0% to 50%	95	102	76
51% to 100%	240	239	186

* Subject to revision.

According to reports from the National Paperboard Association per cents of operation, based on "Inch-Hours" were as follows:

	September, 1934	62%	August	3, 1935	66%
	October, 1934	63%	August	10, 1935	64%
	November, 1934	56%	August	17, 1935	65%
(a)	December, 1934	53%	August	24, 1935	67%
	January, 1935	61%	August	31, 1935	69%
	February, 1935	67%	September	7, 1935	61%
	March, 1935	67%	September	14, 1935	72%
	April, 1935	61%	September	21, 1935	71%
	May, 1935	61%			
	June, 1935	65%			
	July, 1935	59%			

(a) Capacity and percentage data exclude December 25, 1934.
(b) Capacity and percentage data exclude July 4, 1935.
(c) Capacity and percentage data exclude September 2, 1935.

Revised statistics covering delinquent mill returns will be shown in later reports.

C. H. Dexter Sells Oakland Paper Mill

MANCHESTER, Conn., October 7, 1935.—Raybestos Manhattan, Inc., automobile brake lining manufacturers with headquarters in Bridgeport, have purchased the Oakland paper mills from C. H. Dexter & Sons, Windsor Locks paper manufacturers. The laboratory equipment of the Raybestos company, now located in a Brattleboro, Vt., factory will be moved to the Manchester plant where a few men are to be employed.

Plans concerning the Manchester mill were outlined in Bridgeport by Sumner Simpson, president of the Bridgeport concern, who stated emphatically that the company will conduct no manufacturing operations here, using the plant solely for laboratory purposes. "There will probably be five or six employees on duty at the local mill later but in no case will the number working at the Oakland mill total more than double that number," said Mr. Simpson.

At present a small force will be engaged in cleaning up the mill and the paper making machinery which was left there by the Dexter company

Newton Paper Co. Opens New York Office

The Newton Paper Company, of Holyoke, Mass., has established a New York district sales office at 11 West 42 street with F. L. Knoll, who is well known in the trade in the metropolitan area, in charge. The establishment of a New York office with a mill representative in charge brings the company in closer contact with the trade and every effort will be made to cooperate to the fullest extent.

Census of Converted Paper Products 1933

The following is the final report of the Census of Converted Paper Products for 1933 issued by the U. S. Department of Commerce. Preliminary reports for these industries were issued April 30, 1934 and subsequent dates.

The Census of Manufactures for 1933 was the seventh of a series taken at 2-year intervals beginning with 1921, under authority originally contained in section 32 of the Fourteenth Census Act and later in section 17 of the Fifteenth Census Act. Censuses of manufactures were taken decennially prior to 1899 and quinquennially from 1899 to 1919 inclusive.

Description of the Industries

The industries included in the "Converted paper products" subgroup are engaged primarily in the conversion of paper and paperboard into containers and other commodities. These industries are as follows:

BAGS, PAPER, EXCLUSIVE OF THOSE MADE IN PAPER MILLS.—The establishments classified in this industry are engaged primarily in the manufacture, from purchased paper, of bags for groceries and other merchandise, shopping bags, and garment bags. Some establishments in certain other industries manufacture the paper bags in which their products are shipped, but their production of such bags is not separately reported and consequently is not covered by this report.

BOXES, PAPER, NOT ELSEWHERE CLASSIFIED.—The principal products of the establishments in this industry are shipping containers; cartons and folding boxes; set-up paper boxes; paper cans; decorated, lithographed, lacquered, and fancy-covered paper boxes; and other paper boxes and containers.

CARDBOARD, NOT MADE IN PAPER MILLS.—The establishments in this industry are engaged primarily in surface coating and glazing paper, box board, fiber board, and the like. The principal products are printers' cardboard, display cut-outs, lithographic mounts, etc.

CARD CUTTING AND DESIGNING.—The leading products of this industry are index, library, and record cards; guides, etc.; stencil cards for addressing machines; photograph mats, mounts, and folders; pattern cards for weaving; and related products.

ENVELOPES.—This classification covers all manufacturers whose products of chief value are envelopes of any description, including those used for filing, wrapping, etc.

PAPER GOODS NOT ELSEWHERE CLASSIFIED.—The establishments in this industry are engaged primarily in the manufacture, from purchased paper stock, of waxed paper, glazed and fancy paper, toilet paper, coated book paper, and gummed tape; paper cups, dishes, spoons, etc.; paper napkins, waterproof wrapping paper, paper towels, crepe and lace paper, bottle caps, playing cards, paper cores and tubes, and egg-case fillers; bag, barrel, and trunk linings; adding machine and cash-register paper, soda straws, stencil paper, etc.

WALL PAPER.—This classification is applied to establishments engaged primarily in designing and printing wall paper, using as their principal material "hanging paper" manufactured in paper mills.

Statistics of Products

The differences between the values of the several *products* as given in table 2 and the values of products of the corresponding *industries* as given in table 1 are due to the fact that in many cases a given product is made not only as the primary product of one industry but also as a secondary product of others.

Extent of Coverage

All the establishments in the "Bags, paper, exclusive of those made in paper mills" industry, the "Cardboard, not made in paper mills" industry, and the "Wall paper" industry that reported at the census for 1931 were accounted for in the canvass for 1933. The 1933 coverage of the establishments reporting in the "Boxes, paper, not elsewhere classified" industry, the "Envelopes" industry, and the "Paper goods not elsewhere classified" industry for 1931 was substantially complete. Although 50 such establishments in the first, 5 in the second, and 17 in the third of these industries failed to supply any information in regard to their status (active, idle, etc.) or their activities in 1933, these establishments accounted for less than 1 per cent of the total number of wage earners and of the total value of products reported for the respective industries for 1931. In the "Card cutting and designing" industry, three establishments, with slightly over 2 percent of the total number of wage earners and somewhat less than 1½ percent of the total value of products reported for 1931, failed to report for 1933.

TABLE I.—SUMMARY FOR THE CONVERTED-PAPER-PRODUCTS INDUSTRIES, FOR THE UNITED STATES, 1927 TO 1933, AND FOR STATES, 1933 AND 1931

	No. of establishments	No. of salaried employees [1] [2]	No. of wage earners (average for the year)	Salaries [2]	Wages	Cost of materials, fuel, and purchased electric energy	Value of products	Value added by manufacture [3]
				Thousands of dollars				
The Group as a Whole								
United States								
1933	1,916	13,585	89,082	23,553	73,648	260,984	477,089	216,105
1931 [4]	2,069	(5)	89,186	(5)	89,936	271,005	520,921	249,916
1929 [6]	2,243	16,383	105,344	47,709	114,253	369,361	686,137	316,775
1927 [6]	2,043	14,738	101,077	39,971	110,152	358,252	647,908	289,656
Bags, Paper, Exclusive of Those Made in Paper Mills								
United States								
1933	[6] 96	802	7,665	1,345	5,813	29,296	49,379	20,084
1931	95	(5)	6,836	(5)	6,423	33,427	54,291	20,864
1929	95	873	6,970	2,348	6,661	43,238	64,621	21,38.
1927	88	833	6,463	2,113	6,394	40,735	57,490	16,755
Boxes, Paper, Not Elsewhere Classified								
United States								
1933	1,104	5,891	47,220	9,938	37,614	126,326	223,004	96,679
1931	1,214	(5)	46,722	(5)	44,085	113,251	217,872	104,621
1929	1,249	7,800	55,654	22,315	57,110	159,840	294,253	134,414
1927	1,219	7,739	56,398	20,739	57,701	168,464	306,555	138,091
States [7]								
Arkansas:								
1933	3	8	53	17	21	95	165	70
1931	3	(5)	41	(5)	26	55	118	63
California:								
1933	33	177	996	325	998	3,656	6,186	2,530
1931	36	(5)	1,125	(5)	1,216	3,936	6,916	2,980
Colorado:								
1933	6	23	128	52	122	286	594	308
1931	3	(5)	135	(5)	114	233	511	278
Connecticut:								
1933	42	197	1,907	335	1,661	4,472	7,930	3,459
1931	46	(5)	1,851	(5)	1,813	3,062	6,676	3,614
Georgia:								
1933	10	66	415	112	232	850	1,603	753
1931	10	(5)	390	(5)	251	766	1,482	716
Illinois:								
1933	98	725	4,572	1,014	3,809	13,294	23,931	10,637
1931	106	(5)	4,206	(5)	4,531	11,670	22,680	11,010
Indiana:								
1933	23	286	1,790	416	1,475	6,775	10,873	4,098
1931	23	(5)	1,731	(5)	1,617	6,056	10,187	4,131
Iowa:								
1933	9	40	238	46	141	626	874	248
1931	9	(5)	218	(5)	181	482	881	400
Louisiana:								
1933	6	33	367	61	239	1,430	2,178	747
1931	8	(5)	267	(5)	186	1,014	1,658	644

States	No. of establishments	No. of salaried employees [1] [2]	No. of wage earners (average for the year)	Cost of materials, fuel, and purchased electric energy: Salaries [3]	Cost of materials, fuel, and purchased electric energy: Wages	Cost of materials, fuel, and purchased electric energy: Thousands of dollars	Value of products	Value added by manufacture [4]
Maine:								
1933	7	14	99	22	73	124	260	136
1931	11	(5)	164	(5)	127	193	429	235
Maryland:								
1933	25	72	834	103	557	1,738	3,304	1,566
1931	26	(5)	949	(5)	697	1,943	3,710	1,767
Massachusetts:								
1933	97	536	4,211	858	3,490	10,145	18,578	8,432
1931	101	(5)	4,499	(5)	4,347	10,131	19,242	9,111
Michigan:								
1933	22	147	1,246	236	955	4,536	6,016	1,480
1931	23	(5)	1,074	(5)	1,027	3,701	5,739	2,038
Minnesota:								
1933	17	87	750	184	582	2,291	3,789	1,498
1931	16	(5)	589	(5)	585	2,009	3,530	1,521
Missouri:								
1933	47	321	2,398	527	1,814	5,404	9,943	4,539
1931	49	(5)	2,534	(5)	2,127	5,885	10,693	4,808
New Hampshire:								
1933	5	12	78	24	55	214	351	137
1931	8	(5)	107	(5)	89	189	383	194
New Jersey:								
1933	56	336	3,201	614	2,695	10,620	16,388	5,768
1931	64	(5)	2,829	(5)	2,747	8,337	14,493	6,156
New York:								
1933	269	1,103	9,788	1,953	8,186	21,446	43,217	21,771
1931	333	(5)	10,425	(5)	10,388	21,252	47,577	26,325
North Carolina:								
1933	12	36	457	108	279	1,026	2,043	1,017
1931	9	(5)	417	(5)	308	841	1,756	915
Ohio:								
1933	68	457	3,802	822	3,155	12,510	20,427	7,917
1931	68	(5)	3,373	(5)	3,275	9,228	16,883	7,655
Oregon:								
1933	8	24	114	30	88	196	420	223
1931	8	(5)	158	(5)	146	259	565	306
Pennsylvania:								
1933	134	555	4,869	877	3,468	9,469	18,032	8,565
1931	139	(5)	5,001	(5)	4,233	9,084	18,780	9,695
Rhode Island:								
1933	9	35	233	52	164	195	555	360
1931	12	(5)	414	(5)	318	365	1,096	731
Tennessee:								
1933	12	62	713	120	441	1,718	2,904	1,186
1931	11	(5)	446	(5)	334	867	1,709	842
Texas:								
1933	7	43	243	75	161	617	1,164	548
1931	10	(5)	312	(5)	223	635	1,237	602
Virginia:								
1933	11	56	498	107	343	1,377	2,288	910
1931	11	(5)	501	(5)	380	1,239	2,166	927
Washington:								
1933	13	55	363	100	284	1,266	2,347	1,082
1931	14	(5)	333	(5)	319	990	1,713	723
West Virginia:								
1933	8	34	324	68	228	1,384	2,309	924
1931	9	(5)	290	(5)	258	1,298	2,050	752
Wisconsin:								
1933	28	189	1,494	315	1,072	4,546	7,797	3,250
1931	28	(5)	1,467	(5)	1,370	4,089	7,434	3,345
Other States: [6]								
1933	19	162	1,040	366	824	4,018	6,539	2,521
1931	20	(5)	876	(5)	853	3,441	5,578	2,137
Cardboard, not made in Paper Mills								
United States								
1933	[9] 12	118	492	185	452	1,406	2,793	1,388
1931	12	(5)	520	(5)	599	1,656	3,594	1,938
1929	13	210	609	853	819	2,665	5,629	2,964
1927	9	238	658	788	849	2,868	5,581	2,713
Card Cutting and Designing								
United States								
1933	[10] 64	320	1,804	610	1,535	4,029	10,138	6,108
1931	72	(5)	2,041	(5)	2,408	6,674	15,953	9,279
1929	70	470	2,338	1,383	2,725	9,286	19,648	10,362
1927	60	450	2,024	1,228	2,707	7,544	16,871	9,327
Envelopes								
United States								
1933	[11] 163	1,414	7,981	2,392	6,755	15,918	33,896	17,978
1931	162	(5)	8,924	(5)	9,658	22,452	46,943	24,491
1929	171	2,027	10,367	5,424	11,527	29,928	61,287	31,359
1927	153	1,718	9,745	4,177	10,755	28,973	56,006	27,033
Labels and Tags [12]								
United States								
1929	153	997	4,474	3,107	5,869	10,556	28,042	17,487
1927	121	1,689	6,141	3,479	8,000	16,259	34,398	18,138
Paper Goods Not Elsewhere Classified								
United States								
1933	438	4,573	20,681	8,258	18,364	77,158	142,078	64,921
1931*	464	(5)	20,409	(5)	22,769	84,395	162,074	77,679
1929	436	4,288	20,227	12,835	23,810	100,369	182,648	82,279
1927	340	2,934	14,837	8,639	17,765	78,797	140,948	62,151
States [7]								
California:								
1933	18	70	259	143	288	1,793	3,042	1,249
1931	14	(5)	211	(5)	291	1,711	3,113	1,402
Connecticut:								
1933	8	75	419	124	396	907	1,827	920
1931	7	(5)	165	(5)	178	512	945	433
District of Columbia:								
1933 [13]	3	17	83	42	83	121	387	266
Georgia:								
1933	5	43	341	93	220	1,187	2,021	834
1931	6	(5)	348	(5)	284	1,279	2,212	933
Illinois:								
1933	35	336	1,526	681	1,531	6,254	15,249	8,995
1931	40	(5)	1,642	(5)	2,178	8,625	19,723	11,097
Indiana:								
1933	16	102	594	165	399	1,745	3,283	1,539
1931	16	(5)	694	(5)	526	2,352	4,090	1,737
Iowa:								
1933	3	13	71	24	60	379	627	249
1931	3	(5)	52	(5)	61	357	607	250
Massachusetts:								
1933	67	1,007	3,682	1,816	3,392	10,314	18,488	8,174
1931	68	(5)	3,887	(5)	4,426	12,426	21,974	9,547
Michigan:								
1933	20	176	948	290	723	3,866	6,537	2,670
1931	19	(5)	425	(5)	500	2,146	3,614	1,467
Missouri:								
1933	6	31	238	90	250	1,468	2,115	647
1931	8	(5)	362	(5)	429	2,016	3,049	1,034
New Jersey:								
1933	29	249	1,241	514	1,115	4,597	8,702	4,104
1931	32	(5)	1,619	(5)	1,975	7,347	15,193	7,845
New York:								
1933	100	815	3,892	1,384	3,372	13,776	26,239	12,464
1931	111	(5)	4,064	(5)	4,426	15,211	30,893	15,681
Ohio:								
1933	29	316	1,874	563	1,751	8,607	14,537	5,931
1931	28	(5)	1,992	(5)	2,359	6,852	15,890	9,038
Pennsylvania:								
1933	28	511	1,789	943	1,580	5,564	11,652	6,088
1931	35	(5)	1,479	(5)	1,489	4,165	10,088	5,924
Rhode Island:								
1933	11	46	341	78	263	699	1,293	594
1931	11	(5)	278	(5)	320	728	1,546	817
Texas:								
1933	6	36	239	77	200	959	1,761	802
1931	4	(5)	171	(5)	192	894	1,581	686
Washington:								
1933	4	16	53	20	49	363	577	214
1931	5	(5)	40	(5)	48	362	517	155
Wisconsin:								
1933	19	273	1,247	498	965	5,249	9,265	4,016
1931	20	(5)	1,152	(5)	1,190	7,058	10,917	3,859
Other States: [14]								
1933	31	441	1,846	712	1,724	9,309	14,474	5,165
1931	37	(5)	1,828	(5)	1,894	10,352	16,124	5,771
Wall Paper								
United States								
1933	[15] 39	467	3,239	826	3,116	6,851	15,800	8,948
1931	50	(5)	3,734	(5)	3,994	9,150	20,194	11,044
1929	56	715	4,705	2,551	5,732	13,480	30,008	16,527
1927	53	826	4,811	2,288	5,981	14,612	30,059	15,447

* Revised.

[1] Not including proprietors and firm members, as follows: "Bags, paper, exclusive of those made in paper mills," 1933, 8; 1931, no data; 1929, 18; 1927, 27. "Boxes, paper, not elsewhere classified," 1933, 250; 1931, no data; 1929, 440; 1927, 512. "Cardboard, not made in paper mills," 1933, 1; 1931, no data; 1929, 1; 1927, 1. "Card cutting and designing," 1933, 21; 1931, no data; 1929, 45; 1927, 31. "Envelopes," 1933, 17; 1931, no data; 1929, 38; 1927, 33. "Labels and tags," 1929, 57; 1927, 49. "Paper goods not elsewhere classified," 1933, 86; 1931, no data; 1929, 103; 1927, 99. "Wall paper," 1933, 2; 1931, no data; 1929, 1; 1927, 1.

[2] The figures for 1933 do not include data for number and compensation of salaried officers of corporations and therefore are not strictly comparable with the corresponding figures for 1929 and 1927, in which such data are included. No data for employees of central administrative offices are included in the figures for any year.

[3] Value of products less cost of materials, fuel, and purchased electric energy. See sec. 12, p. IV.

[4] No data.

[5] The figures for 1929 and 1927 are not strictly comparable with those for 1933 and 1931 because of the abandonment of "Labels and tags" as an industry classification. See footnote 12.

[6] Ala., 2 establishments; Ark., 1; Calif., 4; Ill., 4; Ind., 3; La., 6; Me., 2; Md., 4; Mass., 5; Mo., 1; N. J., 5; N. Y., 28; Ohio, 15; Pa., 9; Tex., 1; Va., 2; Wash., 3; Wis., 1.

[7] See sec. 15, p. IV.

[8] States included and numbers of establishments reporting for 1933 and 1931, respectively are; Ala., 1, 1; Del., 1, 1; D. C., 2, 2; Fla., 1, 1; Kans., 3, 4; Ky., 4, 4; Nebr., 1, 1; Okla., 2, 2; S. Dak., 1, 1; Utah, 2, 2; Vt., 1, 1.

[9] Calif., 1 establishment; Ill., 2; Ind., 1; Mass., 1; Nebr., 1; N. Y., 2; Pa., 3; R. I., 1.

[10] Calif., 3 establishments; D. C., 1; Ill., 3; Mass., 5; Mich., 4; Mo., 2; N. J., 5; N. Y., 20; N. C., 1; Ohio, 6; Pa., 10; R. I., 2; Wis., 2.

[11] Calif., 8 establishments; Colo., 1; Conn., 2; D. C., 1; Ga., 1; Ill., 20 Ind., 2; Iowa, 1; Ky., 2; La., 1; Md., 4; Mass., 18; Mich., 5; Minn., 9; Mo., 9; Nebr, 2; N. Y., 39; Ohio, 9; Okla., 1; Oreg., 1; Pa., 14; Tex., 4; Va., 3; Wash., 2; Wis., 4.

[12] Abandoned as a separate industry classification. The 1933 and 1931 data for printed and lithographed labels and tags are included with those for the Printing, Publishing, and Allied Industries group.

[13] Figures for 1931 withheld to avoid disclosing approximations of data for individual establishments; including in items for "Other States."

[14] States included and numbers of establishments reporting for 1933 and 1931, respectively, are: Ala., 0, 1; Ariz., 0, 1; Colo., 1, 1; Del., 1, 1; D. C. (1931), 3; Kans., 1, 0; Ky., 2, 1; La., 1, 1; Me., 1, 1; Md., 2, 3; Minn., 3, 3; Nebr., 1, 2; N. H., 3, 3; Oreg., 4, 5; Tenn., 4, 4; Vt., 3, 3; Va., 4, 4.

[15] Conn., 1 establishment; Ill., 11; Ind., 1; Mass., 2; N. J. 1; N. Y., 11; Ohio, 3; Pa., 8; Wis., 1.

TABLE II.—CONVERTED PAPER PRODUCTS—PRODUCTION, BY KIND AND VALUE, FOR THE UNITED STATES: 1933, 1931, AND 1929

	1933	1931	1929
1. "Converted paper products" industries, all products, total value	$477,088,593	[1] $520,921,231	$686,136,843
2. Converted paper products	465,494,407	[1] 508,111,446	638,889,650
3. Other products (not normally belonging to the industries)	11,287,957	[1] 11,788,712	[2] 46,508,549
4. Receipts for custom (or contract) work	306,229	[1] 1,021,073	738,644
5. Converted paper products made as secondary products by establishments in other industries (principally paper mills), value	111,719,089	[1] 126,555,459	178,835,397
Converted paper products, aggregate value (2 and 5)	577,213,496	634,666,905	817,725,047
Bags, paper, total	57,375,490	61,575,890	79,124,252
Kraft	44,044,395	46,271,015	63,884,477
Other	13,331,095	15,304,875	15,239,775
Bottle caps, paper	6,373,093	6,889,745	5,523,755
Boxes and containers, paper and paperboard	253,557,485	259,807,139	346,446,958
Cards cut and designed	10,967,448	15,197,373	16,104,053
Cardboard (converted)	4,869,786	4,205,291	6,937,388
Coated book paper	22,990,863	33,398,853	49,514,438
Crêpe paper	1,659,899	3,031,488	5,003,664
Cups, paper	10,321,080	12,117,287	10,713,637
Dishes, spoons, etc., paper	1,944,371	3,851,952	6,113,115
Envelopes	33,092,998	45,270,347	57,657,514
Glazed and fancy paper	6,127,245	7,053,074	10,575,108
Gummed paper and tape	9,686,858	8,778,886	13,025,734
Lace, paper	1,547,753	2,127,989	2,152,334
Napkins, paper	6,524,162	6,337,307	6,899,617
Papeteries	5,918,480	6,186,691	17,459,242
Rolls, paper (for adding machines, etc.)	1,348,425	1,885,299	1,768,206
Tablets	10,842,694	6,900,588	9,446,543
Toilet paper	24,287,172	25,444,227	25,323,220
Towels, paper	6,598,095	7,857,541	8,035,657
Tubes, paperboard	4,606,979	3,412,348	6,087,140
Wall paper [3]	15,794,369	20,189,360	30,004,881
Waterproof wrapping paper	1,883,415	3,213,439	3,259,295
Waxed paper	30,640,586	34,034,660	35,464,098
Other converted paper and paper-products [4]	48,254,750	55,900,131	65,085,198

[1] Revised.

[2] Includes $28,042,325, value of products reported by establishments classified in the "Labels and tags" industry. This industry was treated as belonging in the Converted Paper Products group at the censuses for 1929 and prior years, but was abandoned as a separate classification at the census for 1931. See footnote 12, Table I.

[3] Number of rolls: 1933, 289,120,472; 1931, 301,398,613; 1929, 373,893,950.

[4] Includes, for 1933, cigarette paper, playing cards, twisted paper (cord, twine, etc.), patterns other than printed or lithographed, unprinted tags, and miscellaneous products not specifically reported by kind; for 1931, same commodities and in addition confetti, roofing paper, and file folders; for 1929, same commodities as for 1931 except patterns, tags, and file folders.

TABLE III.—WAGE EARNERS, BY QUARTERS, FOR SELECTED STATES: 1933 AND 1931

[The average for the year (Table I) differs from the average of the quarterly figures below (see fourth sentence sec. 9, p. III). See sec. 15, p. IV]

States	1933 [1]				1931			
	March	June	Sept.	Dec.	March	June	Sept.	Dec.
Boxes, Paper, Not Elsewhere Classified								
United States	41,917	44,945	54,430	50,506	46,620	46,033	47,701	46,697
States								
Arkansas	40	42	59	69	33	39	51	41
California	895	897	1,114	1,190	1,131	1,118	1,080	1,143
Colorado	106	143	153	136	124	155	140	139
Connecticut	1,795	1,730	2,181	2,078	1,869	1,946	1,813	1,751
Georgia	341	429	485	449	384	377	402	409
Illinois	3,985	4,195	5,196	5,081	4,167	4,083	4,331	4,264
Indiana	1,452	1,612	2,233	1,887	1,711	1,683	1,724	1,888
Iowa	200	267	245	217	227	203	221	200
Kansas	228	307	357	308	236	264	276	241
Kentucky	188	213	267	285	260	222	265	229
Louisiana	283	345	472	397	282	256	271	263
Maine	106	108	114	65	167	172	165	163
Maryland	807	820	908	804	973	917	923	984
Massachusetts	3,837	3,938	4,667	4,401	4,417	4,446	4,738	4,347
Michigan	895	1,198	1,784	1,244	1,031	1,082	1,113	1,055
Minnesota	669	782	869	739	576	551	608	586
Missouri	2,186	2,312	2,719	2,490	2,572	2,523	2,558	2,463
New Hampshire	71	80	79	77	103	111	112	98
New Jersey	2,606	3,000	3,777	3,571	2,716	2,803	2,917	2,925
New York	8,945	9,442	10,906	10,383	10,579	10,131	10,670	10,348
North Carolina	415	441	501	490	419	410	416	412
Ohio	3,448	3,514	4,585	4,243	3,354	3,278	3,387	3,406
Oregon	117	112	111	124	167	157	146	160
Pennsylvania	4,345	4,733	5,492	5,168	4,941	5,020	5,192	5,101
Rhode Island	175	221	299	296	401	385	415	451
Tennessee	863	677	831	702	441	469	462	430
Texas	238	233	275	244	306	295	317	339
Virginia	458	468	587	495	508	497	505	485
Washington	276	368	438	382	338	323	348	313
West Virginia	256	289	394	455	305	294	279	253
Wisconsin	1,247	1,545	1,716	1,479	1,509	1,458	1,471	1,424
Paper Goods Not Elsewhere Classified								
United States	18,398	20,056	23,405	21,741	20,845	20,834	20,448	19,338
California	234	240	283	296	200	218	219	214
Connecticut	389	415	452	413	171	171	173	139
District of Columbia	75	77	116	77	117	114	88	89
Georgia	272	336	394	351	339	361	370	331
Illinois	1,263	1,447	1,689	1,632	1,744	1,624	1,576	1,628
Indiana	550	651	624	488	744	808	731	527
Iowa	70	73	88	63	63	54	52	43
Massachusetts	3,137	3,357	4,345	4,014	3,945	3,855	3,895	3,764
Michigan	784	980	1,095	1,103	405	470	470	411
Minnesota	171	179	169	172	148	146	137	135
Missouri	214	243	303	216	332	384	373	345
New Hampshire	490	510	647	554	488	497	492	464
New Jersey	1,202	1,242	1,339	1,284	1,681	1,702	1,621	1,473
New York	3,497	4,084	4,283	3,940	4,136	4,110	4,021	3,938
Ohio	1,757	1,600	2,111	2,164	2,191	2,146	1,940	1,873
Oregon	151	174	194	173	136	158	168	154
Pennsylvania	1,708	1,775	1,888	1,796	1,461	1,506	1,586	1,321
Rhode Island	300	333	394	339	285	280	275	268
Tennessee	63	98	127	119	34	35	31	41
Texas	187	203	285	294	171	174	180	179
Vermont	144	142	209	170	156	170	200	198
Virginia	178	184	226	190	202	195	214	201
Washington	49	54	58	54	40	41	39	39
Wisconsin	1,065	1,183	1,486	1,272	1,169	1,167	1,147	1,129

[1] See secs. 7 and 9, p. III. The establishments canvassed with the standard schedule reported wage earners, by months, as follows:

Boxes, paper, not elsewhere classified: Number of establishments reported on the standard schedule, 874.

January	38,569	May	40,563	September	51,814
February	39,687	June	42,614	October	52,056
March	39,737	July	45,343	November	50,695
April	39,140	August	49,393	December	47,936

Paper goods not elsewhere classified: Number of establishments reported on the standard schedule, 343.

January	17,769	May	18,590	September	22,724
February	18,295	June	19,442	October	22,249
March	17,833	July	20,673	November	21,629
April	18,196	August	22,243	December	21,136

Keeping Roofs in Repair

The efficient and economical maintenance of plants and business properties is assuming greater importance every day, because this is one phase of plant management that directly affects production, intra-transportation of materials, conservation of plant equipment and protection of merchandise.

The Stonhard Company, 401 North Broad street, Philadelphia, Pa., specialists in the field of industrial maintenance and construction materials for the past fourteen years, has just issued a guide to successful methods of keeping floors, roofs, walls and foundations in good repair.

It is an attractive 24-page booklet, profusely illustrated, designed so that maintenance men, purchasing agents and plant superintendents can gather a wealth of "meaty" information from its pages.

Among the most important subjects are: Lengthening the life of concrete and wood floors; leveling rough spots and worn places in all types of floors and trucking aisles; roof waterproofing methods on which you can depend; waterproofing masonry against hydrostatic pressure.

The booklet is entitled "Over the Rough Spots" and a copy may be obtained upon the request to the Stonhard Company at Philadelphia, Pa.

Applications for Laminated Bakelite

The Synthane Corporation, Oaks, Pa., has issued a new folder, "Synthane Laminated Bakelite for Mechanical Applications." This attractive folder contains the essential physical, electrical, chemical and mechanical properties of Synthane, some of the more important material strength values, representative uses, machinability, types of stock, shapes and colors. Due to the increasing trend toward the elimination of gear noises, one section of the folder deals with Synthane silent stabilized gear material and methods of gear cutting.

Paper Dealers and Paper Manufacturers Form Paper and Twine Club at Chicago

CHICAGO, Ill., October 7, 1935—The Paper and Twine Club was formed at the Hotel Stevens, Tuesday, September 24. The purpose and the aims along which the new organization will function are outlined below:

Purpose of the Club

The name of the club shall be the Paper and Twine Club.

There will be no formal set of by-laws or a constitution.

The purpose of the club will be confined entirely to a social getting together at intervals for one day, part of that day being spent for a joint meeting of the manufacturers and merchants on problems of mutual interest, the general purpose being for manufacturers and merchants to become better acquainted and for such meetings to offer a forum for the frank exchange of ideas on subjects of mutual interest to manufacturers and merchants and to further the interests of cooperation between manufacturer and merchant.

There will be a chairman, vice chairman and secretary-treasurer of the club, the secretary-treasurer of Middle States Wrapping Paper Association acting ex-officio in that capacity, the chairman to be elected from among the merchants and the vice chairman from among the manufacturers, these three to constitute an executive committee to administer the affairs of the club between meetings.

The charter membership shall be constituted of the manufacturers and merchants in attendance at the French Lick Springs meeting of the Middle States Wrapping Paper Association in June, 1935, and those in attendance at the Chicago meeting in the Hotel Stevens in September, 1935. Further members of the club will make application for such membership to the secretary and their applications will be presented to a committee to be appointed by the chairman of the club, said committee to be composed of two manufacturers and two merchants who are members of the club, plus the secretary of the club, the name of such membership committee not to be disclosed to the general membership. Such committee will investigate the qualifications of the member, both merchant and manufacturer, and report their recommendations at the next regular meeting of the club for a vote of the membership present, and election of a member at such meeting shall require a vote of three fourths of those present at the next properly called meeting.

Membership shall be open to any merchant or manufacturer wherever located in the United States, the membership to be held in the name of the individual representing such manufacturer or merchant. In this way both merchant and manufacturer would be permitted to hold more than one membership through the individual representative. The dues shall be $5.00 per year for each member. Membership shall be open to both manufacturers and merchants of wrapping paper, fine paper or twine.

It is suggested that there be two meetings a year, held perhaps in May and October of each year so that such meetings fall on dates between the two National Paper Trade Association meetings, it being felt that more can be accomplished at a meeting held separate and apart from the national meetings; that the May meeting, to be held the latter part of May each year, be a business session and golf tournament; that the October meeting, to be held the latter part of October each year, be a business meeting, with other social activities during the balance of the day as may be decided upon by the entertainment committee.

The chairman shall appoint a program committee consisting of three persons, said committee to be charged with the duty of arranging the program of each meeting.

It was suggested to the secretary that he consider getting out a monthly bulletin to all members of the club, offering such information as would be interesting to the members of the club.

The Bison Song was adopted as the official theme song of the club.

On motion duly made, seconded and carried, C. J. Wittrock of the Paragon Paper Company, Cincinnati, was elected chairman of the club for the ensuing year; Ray Bee of the Southern Kraft Corporation was elected vice chairman of the club for the ensuing year and John L. Richey, secretary, treasurer and counsel of the Middle States Wrapping Paper Association was elected as secretary-treasurer of the club for the ensuing year.

Manufacturers and Dealers Present

The following manufacturers and merchants were present at the organization meeting of the Paper and Twine Club at the Hotel Stevens, Chicago, on September 24, 1935:

Frank X. Meiners, Filer Fibre Company, Chicago, Ill.; Morris Balter, Morris Paper Corporation, Pittsburgh, Pa.; Lewis H. Sisson, The Racquette River Paper Company, Cincinnati, Ohio; W. E. Piper and John J. Cahill, Crystal Tissue Company, Middletown, Ohio; Chester Drury, The Security Bag Company, Lockland, Cincinnati, Ohio; Edgar A. Hall, Central Paper Company, Cincinnati, Ohio; Roth F. Herrlinger, Gummed Products Company, Troy, Ohio; R. E. Whitelaw, Butler Paper Company, Chicago, Ill.; Ben K. Babbitt, Brown Company, Chicago, Ill.; Felix Pagenstecher, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; P. A. Poehler, Watab Paper Company, Chicago, Ill.; E. P. Magel, Crescent Paper Company, Indianapolis, Ind.; J. P. Tyrrell, Northwest Paper Company, Minneapolis, Minn.; Herman Rogers, Minneapolis Paper Company, Minneapolis, Minn.; Geo. P. Prandy and Frank Vaughan, Bay West Paper Company, Green Bay, Wis.; Robert Seybold, Seybold Paper Company, Cincinnati, Ohio; M. A. McNulty, McNulty Paper and Twine Corporation, Chicago Ill.; W. E. Penny, Cayuga Linen and Cotton Mills, Auburn, N. Y.; John A. Shartle, Brown-Bridge Mills, Inc., Troy, Ohio; Willard M. Parker, Columbian Rope Company, Chicago, Ill.; Harold W. Loeper, Cayuga Linen and Cotton Mills, Auburn, N. Y.; J. C. Keeney, Kimberly-Clark Corporation, Chicago, Ill.; H. C. Orchard, Orchard Paper Company, St. Louis, Mo.; Larry Doyle, Union Bag and Paper Corporation, New York, N. Y.; Fin Jamison, Interstate Cordage and Paper Company, Pittsburgh, Pa.; Harry Epstein, Union Paper and Twine Company, Cleveland, Ohio; Chet Spaulding and Bill Hewins, National Paper Trade Association, New York, N. Y.; John L. Richey, Middle States Wrapping Paper Association, Cincinnati, Ohio; C. J. Wittrock, Para-

gon Paper Company, Cincinnati, Ohio; C. E. Roach, Capital City Paper Company, Springfield, Ill.; R. W. Miller, Central Ohio Paper Company, Columbus, Ohio; R. C. McCaskey, Minerva Wax Paper Company, Minerva, Ohio; Neil E. Nash, Nekoosa-Edwards Paper Company, Chicago, Ill.; Bruce Smith and J. P. Downard, Louisville Paper Company, Louisville, Ky.; Reine Roesch, Union Paper and Twine Company, Cleveland, Ohio; Geo. K. Gibson, Mosinee Paper Mills Company, Chicago, Ill.; Tom Fletcher, Fletcher Paper Company, Alpena, Mich.; Charles F. Walden and Charles C. Walden Jr., Paper and Paper Products, New York, N. Y.; Frank Petrine, American Paper Merchant, Chicago, Ill.

May Reopen Winchester Mill Next Year

WINCHESTER, Va., October 7, 1935—Prospects for reopening of the Shenandoah Boxboard plant, now owned by the Kieckhefer Container Company, of Delair, N. J., are seen in a letter received by Andrew Bell, secretary of the Chamber of Commerce, from L. J. Meunier, general superintendent and chief engineer of the concern.

The plant, which was purchased by the Kieckhefer company on December 4, 1934, for a price said to be $250,000, was closed by the new owners but conditions in the paper industry have since improved sufficiently to give grounds for believing the Winchester plant may be re-opened some time early next year.

In reply to an inquiry made by Mr. Bell and W. M. Krise, president of the Chamber of Commerce, regarding the possibility of buying, leasing or renting the plant in event the Kieckhefer Company did not deem it advisable to resume the manufacture of paper here, Mr. Meunier wrote:

"We have never discussed the idea of discontinuing this mill as a paper manufacturing plant. It has always been our plan, and still is, that as soon as business conditions warrant, we would again put the Winchester mill in operation as a paper manufacturing unit.

"The paper industry is enjoying at the present time quite an increase in tonnage over that of 1934, but still this increase does not quite permit our putting in operation the Winchester mill. We do feel, however, that if the increase in tonnage continues to grow in the next few months as it has in the past six, that we would be able to start up the Winchester mill. This, I am sure, would not take place at least before the first part of the year 1936, but we are still hoping that business will increase sufficiently to permit the starting of this mill early next year."

Dr. Herty To Speak at Cordele

CORDELE, Ga., October 5, 1935—United States Senator Walter F. George today accepted an invitation to introduce Dr. Charles H. Herty, famous Georgia chemist, upon his visit to Cordele Thursday evening, November 14, when he will address a great mass meeting at the Suwanee Hotel. This meeting, expected to be one of the most important and largely attended of any other similar event held in South Georgia this year, is being arranged under the auspices of the Crisp County Chamber of Commerce.

Senator George will be present unless some unforeseen circumstances make it impossible for him to come to Cordele. Interest in this meeting is gaining in momentum daily, and is expected to be of far more consequence than first anticipated. Leading railroad executives of the lines entering Cordele, together with other distinguished citizens residing in many sections of the country have signified a willingness to be present. Present indications point to their being here.

To Organize Luncheon Club

Members of the National Association of Waste Material Dealers, Inc., within the metropolitan district of New York are planning to organize a luncheon club which will meet at first once a month at the Hotel Astor, that city, but which later may become a regular weekly luncheon club.

A suggestion sent out from the association's headquarters last week in reference to the proposed club met with prompt and enthusiastic approval.

One of the most attractive private dining rooms of the Hotel Astor has been placed at the disposal of the club without charge other than the actual cost of the luncheon which will be $1.00 plus a small gratuity to the attendant and waiters, which in no event will represent to each member a total outlay per luncheon of over $1.25. There will be no assessments and there will be no solicitation on the part of the association of funds for any purpose, association or otherwise.

A formal notice sent out to the trade particularly emphasizes that "the whole idea of the plan is to offer an opportunity for members to meet each other often enough and under conditions which will lend themselves to developing between them new or additional business relations." While a definite date has not yet been set for the first meeting of the club, October 15 is being tentatively considered. Luncheon will be served between 12:30 and 2 o'clock which will be the regular meeting time each month.

Already, out of town members are asking to be kept advised as to when the first luncheon is to be held, and in this connection all luncheon dates will be published well in advance to give out of town members an opportunity to meet their New York customers and friends under the very pleasant conditions which will prevail at these informal luncheons.

As one of the chief objects of the luncheon club is to create additional tangible benefits for members of the National Association of Waste Material Dealers, the club membership will be limited to members of that association.

Since the above was put into type, so enthusiastic has been the response of members of the National Association of Waste Material Dealers to the plan for organizing a luncheon club for the benefit of members of the Association in the metropolitan district of New York and visiting members from any part of the country that the date of the first luncheon has already been set for October 15.

The Hotel Astor in New York has placed at the disposal of the club one of its most attractive private dining rooms in which the luncheons will be served.

Seeks Source for Catalogue Paper Supply

[FROM OUR REGULAR CORRESPONDENT]

DEFERIET, N. Y., October 7, 1935—A recent inspection of the local plant of the St. Regis Paper Co., by representatives of Sears-Roebuck & Co., has started much gossip here. The Chicago concern is reported seeking a source for its annual catalogue paper and the St. Regis Company is among those said to be anxious to secure the contract. The placing of the contract with the local mill would mean capacity operations for the next year at least. An enlargement of the working force at the local plant would also be necessary. Several years ago the St. Regis Co., handled a similar contract for the Chicago concern but it did not produce the entire amount. It was learned that most of the catalogue paper for the Sears-Roebuck Company is being manufactured at a Canadian paper mill at this time.

PATTEN PAPER CO. READJUSTMENTS ANNOUNCED

(Continued from page 11)

Manager's Viewpoint." Prevailing opinion at a recent jobbers' meeting he attended in Chicago, he said, indicated that business is improving and that those attending were optimistic about the future of the paper business. Mr. Wintgens outlined the problems of the sales department, and asked for closer co-operation between manufacturing and sales divisions. Technical and manufacturing ends were urged to continue efforts towards making better products, and he suggested further laboratory research for new uses for paper. Frank P. Vaughan, treasurer of the Bay West Paper Company, Green Bay, acted as toastmaster.

Sessions closed with a banquet for the superintendents and their wives Saturday evening at Hotel Northland. The program was largely informal, with Fred L. Cobb, humorist, as toastmaster. Musical entertainment consisted of violin selections by Antonio Chiuminatto, and a double quartet of the local Y. M. C. A. Glee Club. Dancing followed, with music by Tom Temple's orchestra.

One afternoon was devoted to inspection trips to Green Bay mills, and to golf and trapshooting. The prize winners were O. L. LaRoux, H. Suhs, W. K. Childs, C. J. Thomas, William McNair, M. L. Peterson, B. H. Metternich, E. McCauliff, L. L. Griffiths, P. Foster, R. W. Meyer, G. Hopkins, V. A. Kaufman, C. F. North and L. J. Allard.

Entertainment for the women visitors consisted of golf, a luncheon at Oneida Golf and Riding Club, sightseeing tours, a dinner at Red Banks resort, and a theatre party.

M. J. Ketter, retiring chairman of the division, had charge of the convention arrangements.

News of the Industry

Regular meetings of the Lake States Section of the Technical Association of the Pulp and Paper Industry will be resumed with a dinner Tuesday evening, October 8, at Conway Hotel, Appleton, Wis. Papers on "The Recovery of Chemical from Soda Base Sulphite Pulping Liquor," by P. S. Billington, G. H. Chidester and C. E. Curran, of the United States Forest Products Laboratory, Madison, Wis., and "The Catalytic Removal of Iron from Water," by M. J. Shoemaker, of the C. F. Burgess Laboratories, Madison, will be presented. The meeting has been thrown open to all paper industry representatives, and more than 100 reservations already have been made.

Possibility that the pollution of the Fox River by paper mill waste may reach a solution is contained in the announcement of PWA fund grants for seven sewage disposal systems in the mill area. They have been granted to Appleton, Neenah, Menasha, Little Chute, Wrightstown, Kaukauna and Green Bay, Wis. These grants exceed two million dollars, representing part of the cost of the plants. It is expected that all of these cities will go through with the projects. If the villages of Combined Locks and Kimberly also build plants, or avail themselves of joint usage with one of the nearby installations, there will be no further sewage deposits in the Fox River in any of the valley cities where mills are located.

Kimberly-Clark Corporation last week received its fourth cargo of pulpwood from Canada in its experimental shipment by water. The steamer *Troisdoc* brought 1,450 cords to DePere, Wis., for reloading by a crew of forty men to barges of the Fox River Navigation Company. The wood is being delivered via Fox River to the Kimberly, Wis., mill. Because of unfavorable shipping weather, only one more cargo probably will be brought across Lake Superior this fall.

Presidents or other executives of most of the paper mills of Wisconsin were guests at a dinner last week at the Plankinton Hotel, Milwaukee, Wis., where plans were shaped for the Milwaukee and Wisconsin Exposition, to be held November 16 to 24 at the city auditorium at Milwaukee. Reports were made on the progress of preparations. The exhibits are to include demonstrations of paper manufacture, and of the products made by Wisconsin mills.

Roy L. Davis, of the Detroit Sulphite Pulp and Paper Company, Detroit, Mich., and Miss Eleanor Voecks, Appleton, Wis., were married last week at the home of the bride. Dr. H. E. Peabody, former pastor of the First Congregational Church of Appleton, performed the ceremony. The couple left on a honeymoon trip to Canada, and will reside at Dearborn, Mich. Mr. Davis is a graduate of Bates College, Lewiston, Me., and received his Ph. D. degree in 1933 from the Institute of Paper Chemistry, Appleton, Wis.

St. Croix Paper Co. Wins Safety Trophy

PORTLAND, Me., October 7, 1935—The almost incredible record of the St. Croix Paper Company of Woodland of having gone for more than 3,200,000 man-hours, or 47 months, without a lost-time accident, was singled out for unusual praise at the closing session of the eighth annual State of Maine Safety Conference held here recently.

The St. Croix company, which holds this world's record in the paper and pulp industry for consecutive "safe" man-hours, was awarded a special State Department of Labor and Industry trophy for the exceptional achievement.

For having made the most progress during the past year in accident prevention work in Maine, the Saco-Lowell Shops of Biddeford was awarded the Gov. Louis J. Brann trophy.

Among the certificates of merit awarded was one for the Roger Fibre Company at Bar Mills.

Nearly 400 persons attended the two-day meeting, which was described by Walter J. Brennan, safety engineer of the State Department of Labor and Industry and conference director, as the largest convention of its kind ever held in Maine.

In addition to the awarding of trophies, an outstanding feature of the closing session was a demonstration by a typical first aid team of the Hollingsworth & Whitney Company of Gardiner. The audience was visibly impressed with the speed and skill of their work in meeting several typical emergencies.

Important aspects of correct lighting were demonstrated by Simeon D. Dyer, lighting engineer of the Central Maine Power Company, who declared that poor light consumed one-third more energy, and also was believed to have some effect on the heart. Latest applications of photo-electric cells in industry were demonstrated by W. I. Bendz of the Westinghouse Manufacturing Company of Boston.

To Cease Using "Triple Coated"

WASHINGTON, D. C., October 9, 1935—The Imperial Manufacturing Company, of New York City and Newark, N. J., has entered into a stipulation with the Federal Trade Commission to cease and desist from use of the words "triple coated" to describe its product, a carbon paper, when, in fact, the stipulation sets out that the product was not coated with carbon ink three times in the process of manufacturing so as to be properly referred to as "triple coated."

Rag Content Paper Manufacturers Launch Fall Campaign

The Rag Content Paper Manufacturers have just launched their fall cooperative advertising campaign on behalf of rag-content papers. The "Backlog" of the new campaign is a colorful new brochure, "When to Use Rag Papers." This new brochure is the sequel to the one published last year under the title of "Why—Rag Papers?"

The previous educational campaign proved such a success that the new effort follows along similar lines. Almost 300 fine paper merchants are enthusiastically cooperating in the campaign. Hundreds of letters of commendation have been received from printers, lithographers, engravers, paper merchants and others interested in the graphic arts. Altogether, written requests were received for approximately 35,000 sets of the advertising material used in the previous campaign.

The new brochure, "When to Use Rag Papers," is now being distributed through fine paper merchants. It is lithographed in three colors, on 100 per cent rag paper, and is beautifully illustrated with wash drawings depicting office scenes and industrial backgrounds identified with prominent users of rag papers. Among the latter whose letterheads are reproduced are: Radio Corporation of America, the Equitable Life, General Motors, National Broadcasting, and General Electric Company.

The booklet is intended to be used as a sales medium by paper mill salesmen, paper merchants and printers. The foreword is entitled, "A Message to Men Who Think in Terms of Quality," and the contents are divided into three principal sections relating to the advantages of rag papers for business correspondence, their utility in preserving important business records, and their value in impressing customers and prospects with the user's ability, reliability and leadership. Under each section is listed specific kinds of business literature for which rag papers are especially suited.

Two pages under the caption, "The History of Civilization Is Written on Rag Papers," are illustrated with pictures of historical events in which rag paper played an important part. These relate to the invention of paper by the Chinese, its replacement of papyrus in Egypt, Christopher Columbus' correspondence, the Declaration of Independence, and the use of rag paper by certain modern newspapers for printing special limited editions for the use of libraries, historical associations, etc.

The booklet was designed and written by the H. L. Stedfeld Company of New York, the advertising agency which handles the account. Copies of the booklet may be had without cost by writing to the Rag Content Paper Manufacturers, 122 East 42d street, New York, N. Y.

China Imports More Paper

WASHINGTON, D. C., October 9, 1935—Imports of printing paper with a mechanical groundwood content, which would include newsprint, into China last year amounted to approximately 4.919 short tons, more than half of which were recorded as coming from Japan, according to reports from Consul General Edwin S. Cunningham, Shanghai. Imports last year were about double those of 1933. Imports of wood free printing papers into China, however, dropped from 16,198 tons in 1933 to 9,757 tons last year, the leading countries of origin being Norway, Japan, and the United States. Newsprint is used in China for elementary grade text books, as well as for the printing of newspapers. While no exact figures are available, it is estimated that about one-fifth of the newsprint imported is used for this purpose.

John P. Burke Speaks on Newsprint

GLENS FALLS, N. Y. October 7, 1935—In an address here John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, declared that the newsprint industry is facing ruin because of foreign competition. He said that very few people even in communities where paper are located understand fully what has happened to the newsprint industry in this country in recent years. When newsprint paper was placed on the duty free list during the Taft administration, he said, there were 1,300,000 tons manufactured in this country and only 220,000 tons of newsprint paper imported from foreign countries. That was 22 years ago.

Mr. Burke said that figures for newsprint production for the first half of this year show a still further decline for mills in this country. Production in North America during the first six months, he said, totaled 1,921,000 tons. There was an increase in Canadian production of 220,000 tons, an increase in Newfoundland of 10,000 tons, a slight increase in Mexican tonnage, but a decrease of 29,000 tons in the output of mills in this country as compared with the first half of 1934. He said that the unions are actively cooperating with the newsprint manufacturers in trying to induce government officials to write into the reciprocal trade agreement with Canada a provision for placing imports of paper on a quota basis. It is his belief that unless restrictions are made there will be little newsprint manufactured in this country within a few years.

Brown Co. Mills To Remain Open

PORTLAND, Me., October 5, 1935—The signing of an order by Federal Judge John A. Peters confirming a new contract between the Brown company and the state of New Hampshire and the city of Berlin, N. H., today assured continuance of operations at the company's mills in Berlin.

The contract, signed following a lengthy hearing in federal court here, assured the company of approximately $2,000,000 to supply pulp woods for the mills and continuance of woods operations until the end of 1937.

Leonard A. Pierce, attorney for the trustees now directing affairs of the $74,500,000 company during its reorganization under the federal bankruptcy act, outlined the terms. Under the new contract, the base price of wood is advanced $1 a cord after November 1, the extra amount applying to the state of New Hampshire to compensate it for its risks in advancing the loan. This extra dollar will accrue to reducing the $240,000 the company already owes on a previous contract.

Classes for Foremen at Hamilton

DAYTON, Ohio, October 8, 1935—Hamilton manufacturers again are interested in the series of classes for foremen of industries of that city, which were started this week at the Y.M.C.A. under the direction of Prof. Ralph Jacobs of the University of Cincinnati.

The class this year is in "Instructor-Foremen Training," and will have as its major purpose the developing of foremen better to meet their obligations in training new employees, or re-training old workmen recently employed.

It will provide training in teaching techniques, procedure and methods and also will give an opportunity for the foremen to teach under supervision.

Among the firms interested in the plan are the Beckett Paper Company, the Black-Clawson Company and its auxiliary plant, the Champion Paper and Fibre Company, and other concerns either directly or indirectly connected with the paper trade.

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THE PENALTY OF UNBALANCED WAGES AND PRICES

Prolonged unemployment and reduced annual incomes of wage-earners are both due primarily to wage rates artificially maintained above the general price level, according to Allen W. Rucker and N. W. Pickering in their most recent booklet, "The Penalty of Unbalanced Wages and Prices," published by Farrel-Birmingham Company, Inc., Ansonia, Conn.

Using official figures of the U. S. Bureau of Labor, the authors show that the decline in employment since 1926 among Class I railroads and in the anthracite coal industry is almost precisely the same percentage as the hourly wage rates of those industries has been above the general price level in each year.

Every increase in the hourly wage rate, relative to the general price level, created fresh unemployment, good years and bad alike. In the seven years after 1926, 809,000 or 44.9 per cent of railway employees lost their jobs while hourly wage rates were being raised 46 per cent above the general price level as measured by the U. S. Bureau of Labor Index.

Anthracite coal prices, largely determined by prevailing hourly wage rates, reached a peak in 1933 of 44 per cent above the general price level—coincident therewith employment fell to 47 per cent below 1929.

The official figures show that factory employment as reported by the Federal Reserve Board for 1934 averaged 28 per cent below 1929, almost exactly equal to the approximate 29 per cent by which factory wage rates were above the general price level for 1934.

The entire lesson of history since 1929, the authors assert, can be pictured in a single chart presented in the booklet. This chart shows that the increase in wage rates above the prevailing price level, year after year, compelled selling prices above the general price level and that the unbalanced prices during 1930-1934 reduced the factory demand and with the reduction in factory demand, there was an almost exactly corresponding reduction in employment.

When this chart is studied, it will reveal that the continuation of depression conditions is traceable directly to unbalanced prices caused by unbalanced wage rates.

It will show, from official records, the remarkable correlation existing between wage rates and prices, and physical output of factories and employment.

It will strikingly picture for the first time the absolute necessity of restoring balanced price and wage relationships before any definite and sustained recovery can possibly take place.

And it will beautifully emphasize again that the interests of industry and labor are one and the same, for, by balancing wage rates and thus permitting balancing of selling prices, demand can be stimulated with a consequent increase in both employment and the annual incomes of workers; by modifying working hours to the point where the productivity of the worker is at his maximum, there arises an automatic increase in the annual income per worker more than sufficient to offset any apparent loss from longer-than-code hours and modified wage rates; by encouraging the more extensive use of improved equipment, whereby the output per worker can be increased, prices can be lowered to stimulate greater demand and employment, and the productivity of the employee increased.

Those are the principles which from 1899 to 1930 brought the American worker a steadily increasing annual income, with a progressively higher standard of living.

Those conditions, the authors state, can be restored again; not by strikes and higher wage scales; not by price-raising schemes and monetary tinkering; not by minimum wage laws and maximum working hours; but by the simple process of balancing wages and selling prices with demand —and giving industry and labor unrestricted freedom to increase productivity, annual wages and earned profits.

It is exceedingly unfortunate, the authors emphasize, that American Labor continues to be the victim of false doctrine and American industry the joint loser with labor as that doctrine is expressed in radical legislation. Every success in enforcing a wage scale of hourly rates above the general price level is penalized by a reduction in the annual income of workers and the loss of employment. And the greater the success in compelling high wage scales, the greater the resulting loss of income and employment to American labor.

STEADY RECOVERY

Business conditions are appreciably better than a year ago and business men are more optimistic, but sentiment for and against the policies of the New Deal is sharply divided, according to the fourth business survey conducted by Fenner & Beane, security and commodity brokers, through their forty branch offices in this country. Sectional interests were found to weigh heavily in the answers to the questionnaire used in conducting the study.

"Tabulations of reports returned showed that America is obviously in the process of steady recovery," the survey stated. "Manufacturing has shown distinct improvement, which varies from 5 to 21 per cent in different sections of the country. Heavy industry has shown a somewhat larger recovery, now standing at levels ranging from 8 to 30 per cent above last year. Bankers are willing to lend money to responsible borrowers and credit is ready to flow into commerce and industry when needed.

"Employment in the sections reviewed has been stepped up anywhere from 10 to 25 per cent, while retail trade has been showing gratifying improvement, now ranging from 13 to 21 per cent above last year. Instalment sales, particularly, have been highly active on the upside, moving ahead anywhere from 12 to 25 per cent above a year ago.

"Farm income," the survey shows, "has gained about 18 per cent over the past year. Credit for this improved situation is generally divided between the AAA benefits, on the one hand, and higher prices for agricultural products, on the other, with prices being given the advantage of any doubt. In any case, the country sees the economic condition of the farmer as somewhat better than 'fair,' with current 1935 crops 'good,'" the report showed.

China Will Make Her Own Newsprint

Another step in the campaign to make China self-sufficient industrially and independent of foreign imports is being taken by the Ministry of Industry with the establishment of a large scale paper plant at Wenchow, Chekiang province.

Noting the heavy demand for imported foreign made papers, the Ministry has decided to fill a large part of the demand by erection of a factory which will turn out all grades of paper, including newsprint, which is used in greater quantities each year. Although the new plant will be operated on the lines of a private industry, and will engage in commercial competition, its direction and control will remain in the hands of the Government Ministry.

Final plans are being drafted by a British engineering expert, and actual construction will commence soon, according to Liu Wei-Chih, Vice-Minister of Industry. The site at Wenchow was chosen because of advantageous communication facilities and its proximity to sources of raw material.

A New Wood Handbook

A new Wood Handbook, in which wood is defined in technical properties and behavior, is a publication of interest to wood users generally which embodies the results of 25 years of research by the Forest Products Laboratory at Madison, Wisconsin. It treats of all the practical phases of wood use, including the mechanical properties of wood and the facts recently develped in regard to ring placement, fatigue effects, the various factors affecting strength; control of decay and insect damage, classification of woods for painting, timber for outdoor use, preservative treatment, and treating for effective fire resistance. Distinctly modern fields of use are covered in a section on glued, laminated, and composite wood construction.

Copies of the HANDBOOK may be obtained for 25 cents (stamps not accepted) from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Three Brown Co. Trustees Appointed

PORTLAND, Me., October 7, 1935—Orton B. Brown of Berlin, N. H., general manager of the Brown Company, Rolland H. Spalding of Rochester, N. H., former governor of that state, and William B. Skelton of Lewiston, attorney, were named trustees for the $74,500,000 Brown Company at the first hearing for reorganization under the new national bankruptcy act in Federal Court last week.

A crowded courtroom witnessed the opening session. Seven different legal firms put in appearance to represent the various creditors and bondholders group. The largest representation was on behalf of a committee of bondholders headed by Charles Francis Adams of Boston. That group, through its attorney, said that it was in nominal possession of assets from $7,500,000 first mortgage bondholders. The State of New Hampshire Savings Banks Association appeared for $2,000,000 first mortgage bonds, the Maine Savings Banks Association, $400,000 with $400,000 more to come later; Jacob H. Berman represented $100,000 bonds, with $300,000 more to come from bondholders in the State of New York.

Both the City of Berlin, through Matthew J. Ryan and Mr. Berman, and the State of New Hampshire, through Robert W. Upton, were in attendance to protect the municipal and State obligations. A Creditors' Committee also was present represented by Phipps, Durgin & Cook of Boston.

Judge Peters took up the claims of the State of New Hampshire and the City of Berlin on timberland cutting agreements between the two and the company. The court directed that final disposal of pending agreement between the parties be carried over until Saturday, when the trustees will have been named. Leonard A. Pierce, appearing for the company, outlined the agreement under which the company borrowed money guaranteed by the State to carry on its woods operations as a relief labor measure. He pointed out that continuance of that plan was necessary to keep the Berlin, N. H., mills in operation.

On the third petition before the court, the Babcock & Wilcox Company, which placed a mechanic's lien on the Berlin plant for certain machinery installed last Summer, was given the right to protect its claims under New Hampshire laws.

Watervliet Paper Mill Addition Is Planned

WATERVLIET, Mich., October 7, 1935—The management of the Watervliet Paper Company is contemplating the building of an addition to the plant which will enlarge the stock room and shipping floor space. Although the work has not definitely been decided upon, a Kalamazoo architect, has plans for the building ready, and City Engineer E. J. Stevens has made preliminary surveys and estimates.

The proposed building will be located at the southwest corner of the office. It will be 112 feet long and 85 feet wide on the west side and 32 feet on the east side. It is to have two stories and a basement, with 7,000 feet of space on each floor. If the plans are approved work will be started this fall and will provide employment for a considerable amount of skilled and unskilled labor.

Trade Volumes Highest Since 1930

Buyers are more willing to purchase goods and services than they have been since the second quarter of 1933 and trade volumes this fall are at the highest level for any autumn since 1930, United Business Service reports.

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Section of the
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Edited by Ronald G. Macdonald, Secretary

Psychology Answers Problem of Color Harmony

By Faber Birren[1]

Over two centuries ago Newton wrote: "Considering the lastingness of the motions excited in the bottom of the eye by light, are they not of a vibratory nature? Do not the most refrangible rays excite the shortest vibrations—the least refrangible the largest? May not the harmony and discord of colors arise from the proportions of the vibrations propagated through the fibers of the optic nerve into the brain, as the harmony and discord of sounds arise from the proportion of the vibrations of the air?"

Speculations such as these, coming mainly from physicists, have for years confounded the color art. Harmony, which is so largely a matter of sensation, has been interpreted objectively rather than subjectively. Colorists have struggled to analyze physical laws and give them emotional application. And psychology, the most empirical of the sciences and the one closest to an understanding of sensation, has been almost totally ignored.

It is known today, at least by psychologists, if not by colorists, that the physical nature of color is quite remote from the human nature of it. An ambition to relate light vibrations with experience and consequently with emotion is beset by sizable obstacles. Unlike music the color art does not find its basis in physical laws. There is no clear relationship between light frequencies and colors as human beings see them and experience them. It is likewise impossible to study the spectrum and from a mathematical analysis of its wave lengths find any intelligent order with respect to the colors people distinguish. The attempt has been made time and time again, always with failure.

Yet psychology holds many answers to the problem of harmony. And it can set forth rules and laws that have much truth and pertinence.

Today the color art is confused by the testimony of physicists. When Helmholtz stated that "the color impression made by a certain quantity x of any given mixed light can always be produced by the mixture of a certain quantity of white light a with a certain quantity of a saturated color b (a spectral color or purple) of definite hue," he automatically set up arbitrary notions about color which have since persisted in keeping the color art from finding a more practical explanation in psychology.

The terms value and chroma, so prevalent today in color harmony, are the direct result of this postulation by Helmholtz. The conception held by the average artist and teacher of art is that hue is one thing and that value and chroma are plus factors. Color has volume rather than unity and any hue can be changed by adding white or black, an idea synonymous with pouring the elements into vials and changing character by increasing or decreasing volume.

Natural Symbol of Color

Psychologists, however, since Hering, know that all colors have unity. Unlike the physicist they recognize the positive and active character of black and are not confused by the physicist to whom black is nothingness. As Hering stated, all colors are derivatives of hue, white and black. The natural symbol of color is therefore an equilateral triangle, with pure color at one angle, white at the second and black at the third. Within this triangle lie all possible tones of the hue.

This is clearly expressed in Fig. 1, a diagram developed by Ostwald. That C + W + B = 1 is true and that the equation holds good for all tints, shades and tones, is proved by the fact that if a color is located anywhere within the triangle and if one line is drawn from its parallel to CW, one to CB and one to WB, the total combined length of these lines will always equal the length of one side of the triangle. Here black plays a vital role and is given a psychological prominence equal to that of hue or white.

This equation of Ostwald quite clearly and emphatically replaces hue, values and chroma with hue, white and black as the three essential elements in all color sensations. They are qualities that always combine to form unity and which are measurable, at least visually.

More important, however, is that this excellent conception of color opens up entirely new avenues to beauty and allows for a modern statement of harmony that is all psychology and no physics.

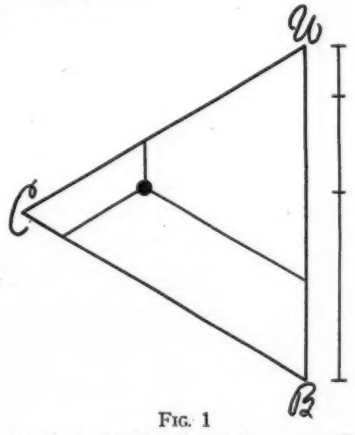

FIG. 1
The Ostwald equation

[1] 919 North Michigan Ave., Chicago, Ill.

Pure Colors

Forgetting red, yellow, green and blue as elemental, let me discuss pure colors in general with reference to white and black.

Professor Dimmick has pointed out the psychological uniqueness of gray. Although a product of white and black, gray according to Dimmick has a fundamental visual quality that bears no resemblance either to white or to black. To my mind this leads to a first step in the further development of Hering's hue, white and black idea and Ostwald's triangle, a development directly affecting color harmony and with a logical basis in psychology.

Examine my color triangle shown in Fig. 2. This is quite elemental in plan. Yet it has features which set it apart as a novel and extremely simple graph of visual and psychological facts.

It will be noted that the three angles are comprised of color, white and black in accordance with Hering's statement and Ostwald's equation. Now supplementing this are four simple products or derivatives. Gray is a product of white and black. Tint is a product of color and white. Shade is a product of color and black. Tone is a product of all three elements, hue, white and black.

This triangle with its supplementary qualities is unique in several ways. First of all it diagrams every conceivable gradation of color and nothing exists which cannot be identified as a hue, as white, black, gray, tint, shade or tone. Color study is thus given a surer grasp of color forms and color terms. In the field of harmony all things can be described with seven words. Esthetic terminalogy is efficiently confined and reduced to an all-inclusive minimum.

From the scientific standpoint this triangle expresses many practical and interesting laws. If gray, according to Dimmick, is psychologically unique (and if gray is a product of white and black) the same uniqueness should exist with reference to the remaining three supplementary qualities—tint, shade, tone. I admit that visual uniqueness is not generally found with them. However, emotional uniqueness often is.

With tints, for example, red, yellow, green, blue will resemble their pure originals. Yet in the color preference of most individuals responses will differ. Red as a pure hue is highly favored. As a tint (pink) it loses out greatly and will fall low in choice. Orange as a pure hue generally ranks low in color preference. As a shade (brown) it stands high and is usually more pleasing than shades of red, yellow, blue or green. In the case of orange its shade also has visual uniqueness and bears little if any resemblance to the pure color.

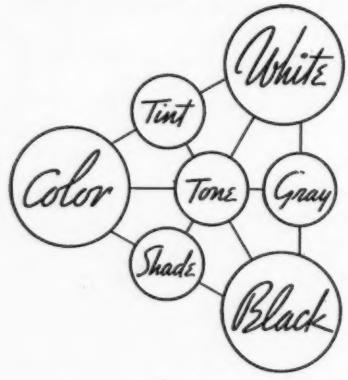

FIG. 2
The Birren color triangle. Copyrighted 1934.

Tones (colors plus white and black) lack the more precise emotional uniqueness of tints and shades. Preference for them usually follows the order selected for pure hues.

Thus, in a liberal way, the color triangle shown in Fig. 2 offers a satisfactory and useful psychological graph of color. Of greater value, however, it automatically explains and charts color harmonies and gives intelligent reasons for them.

Greatest contrasts exists where the colors chosen differ totally in character. White and a shade, black and a tint, pure hue and gray are examples. In each case the qualities of the pairs differ completely with reference to hue, white and black contents. Pure hue and gray, as a case in point, are foreign to each other. The gray contains the two primary elements (white and black) not found in hue. (Much of the garishness of newspaper color work might be attributed to the fact that pure hue is printed on gray stock, not white, and the contrast therefore tends to clash because there is no balanced relationship of elements.)

Maximum Harmony

Greatest harmony, on the other hand, exists where the hue, white and black elements have definite and orderly relationship. Refer again to Fig. 2. Any straight path on the triangle leads to beauty: white, gray and black; pure hue, tint and white; pure hue, shade and black; white, tone and shade; tint, tone and black; pure hue, tone and gray.

Such beauty will be evident if actual experiments are carried out. The triangle, in fact, seems to divulge natural psychological laws of harmony and to explain reason for these laws. In the case of tint, tone and black, for example, the tint and black, which have no primary elements in common, are harmonized by tone which has all three elements and therefore tends to lend analogy to the whole combination. In the case of pure hue, tone and gray, the hue contains no black or white and the gray contains no hue. Yet the tone, which contains all three elements, serves to blend with the two contrasting forms and to harmonize them.

Where the harmony follows a straight path on the outer boundaries of the triangle (color, tint, white; color, shade, black; white, gray, black) a more straightforward analogy exists for reasons that are perhaps more evident. Here the beauty is likely to be refined and rather soft because one primary element is always left out (pure hue, tint and white, for example, contain no black).

Finally, the triangle indicates two triad harmonies, so to speak. The first of these is color, white and black. Here are the primary elements all displayed in simple form. The effect is generally startling and lucid. The other triad consists of tint, shade and gray. Here the supplementary qualities are combined and the effect is mellow, esthetic and more subtle. Tone can be added to either of these two triads for added harmony and analogy.

The above harmonies and the psychological and emotional significance of my triangle are, I believe, new, at least to the color art. With esthetic terminology reduced to seven readily understood forms—hue, white, black, tint, shade, gray, tone—and with a simple, harmonious order established through their arrangement on a triangle, psychology can at last give an intelligent answer to the color art. To my way of thinking, this answer, so conveniently given in the triangle, should prove useful. It establishes a practical basis for color study that could not come from the physicist. It is concerned primarily with sensation and its seven forms can be easily comprehended and remembered by anyone.

While it does not answer questions as to the harmonious arrangements of various hues, it does make quite clear that color harmony is dependent not solely upon hue but upon white and black and derivatives of them. Colors do not harmonize in all forms—a fallacy which exists today in color education. To study the harmony of pure hues only and to imply from such study that beauty will hold true regardless of how the colors are modified, is erroneous. The triangle should serve to correct this misconception and to emphasize the importance, when modifying colors, of paying respect to their visual and psychological order. The world should be coached in a more empirical viewpoint on color and the triangle should make people more alert to what the realm of psychology has to offer.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Sulphite Process

Shortening the Cooking Time for the Sulphite Cooking Process Through Pre-Treatment of the Wood. E. Borchers and O. Bryde. Papier-Fabr. 32, No. 49: 500-505 (Dec. 9, 1934).—With data from numerous cooks using untreated wood, wood saturated with sulphur dioxide, and wood which has been evacuated before cooking; the author shows that pre-treatment and evacuation offers considerable advantages in reducing the cooking time in the sulphite cooking process. There is also an increase in yield, increase in strength properties and the whiteness of the pulp. Details of the experiments together with many curves accompanies the article.—J.F.O.

Litharge-Glycerol Cements for Sulphite Digesters. Pappers-Trävarutid. Finland 16, No. 23:972, 974-976 (Dec. 15, 1934).—A review of the German and Russian researches on this subject by Steger, Tipka, Nagorski, Lopatin and Giller.—C.J.W.

Process and Arrangement for the Cooking of Sulphite Pulp. Aktiebolaget A. Ekstroms Maskinaffar, Stockholm. Czech. pat. 47,072.—Ejectors are provided for both the liquor and the gases.—J.F.O.

Process for the Preparation of Sulphur from Metallic Sulphides or from Gas Impurities Containing Sulphur. L. F. William Leese, London. Nor. pat. 53,806 (Dec. 20, 1932).—The material containing the sulphur is subjected to the action of superheated steam at a reaction temperature of from 400 to 1000° C.—J.F.O.

Process for the Removal of Selenium and Arsenic from Sulphur. Metallgesellschaft A.G., Frankfurt a.M. Nor. pat. 53,807 (Dec. 20, 1932).—The removal takes place by treating the sulphur with an oxydation medium at a temperature above the melting point of the sulphur. Nitric acid or nitrous vapors are used.—J.F.O.

Sulphite Pulping Process. Otto Kreissler, assignor to American Lurgi Corp. U. S. Pat. 1,986,760 (Jan. 1, 1935).—The digester is filled with chips and liquor; after closing the digester, the liquor is pumped out and the air is exhausted as completely as possible. The liquor is then reintroduced and cooking is carried out as usual.—A.P.-C.

Slow and Rapid Pulping of Wood for the Production of Viscose Rayon. Frantz Khyuter. Bumazhnaya Prom. 13, No. 9:18-24 (1934); C. A. 29:1244.—Experimental pulpings were made with 3.5, 5.5 and 7.5 per cent sulphur dioxide and 1 per cent lime. The cooking with 7.5 per cent sulphur dioxide requires 10 hours and 42 minutes as compared with 10 hours and 50 minutes for 5.5 per cent sulphur dioxide. The latter method as compared with the slow pulping (3.5 per cent dioxide) is preferred, because a 3-4 per cent loss in pulp yield is fully compensated by the 25-30 per cent economy in time. The pulp is entirely satisfactory for viscose production; the ash content and copper number are even more suitable, while the alpha-cellulose content and viscosity, though somewhat poorer, are within the limits required by the standard.—C.J.W.

Significance of High Calcium Cooking Acid in the Sulphite Process. E. Hägglund and H. Nihlen. Svensk Pappers-Tidn. 37, No. 23:754-756, 759 (Dec. 15, 1934).—The spruce chips used represented trees of different ages and from different localities. The liquors used were held constant in sulphur dioxide content but contained increasing amounts of lime. High lime liquors gave pulps in greater yield than liquors low in lime, although a longer cooking time was required in the first case. The quantity of sugars in the waste liquors was found to decrease linearly with increasing lime content in the cooking acid. The second series of laboratory cooks was made using chips from a 47 year old spruce. The results of this series indicated that the yield of shive free pulp increased by about 0.2 per cent on the weight of the wood for each 0.1 per cent increase in lime content; the breaking length and bursting strength rose markedly with the use of high lime liquors; easier beating is achieved and a slightly whiter pulp results when high lime cooking acid is used. The increase in pulp yield was found to be more rapid when the lime was raised from 0.6 to 1.0 per cent than from 1.0 to 1.4 per cent.—C.J.W.

Effect of Indirect Heating with Forced Circulation on the Heat Balance of Sulphite Pulp Mills. V. Lassberg. Warme 57: 420-422 (June 30, 1934); Chimie & Industrie 33:151-152 (Jan., 1935).—Introduction on a commercial scale of acid-resisting steels has permitted the development of forced circulation systems for sulphite cooking, with indirect heating in an outside heater. Indirect heating results in a lower steam consumption as well as a lower cooking pressure. Cooking with forced circulation is carried out at a pressure of 3 atmospheres, whereas 7 atmospheres are necessary without forced circulation; this results in higher efficiency in steam utilization. Condensate from the heater can be used as boiler feed water. The power required for pumping (about 30 h.p. for a 200-cu. m. digester) is more than offset by the lowering in pressure. Forced circulation increases the chance of fibrous material per cu.m., with a corresponding reduction in the amount of liquor and improvement in the heat balance. Lower cooking temperature reduces the heat loss by radiation. Time of cooking is appreciably

shortened. Taking into account the heat recovered from the condensate from the heater, the steam consumption is 1.4 kilos per kilo of pulp produced with the digester charged at the rate of 105 kg. per cu.m., as compared with 1.6 kilos of steam when the charge is 96 to 98 kilos per cu.m. A higher yield of more uniform and less degraded cellulose is obtained.—A.P.C.

Problems of Recovery (of Heat and Sulphur Dioxide in Sulphite Pulping). N. N. Nepenin and P. V. Khviyuzov. Tzentral. Nauch.—Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, No. 2:3-26; C. A. 29:1628.—The study of rapid sulphite pulping is confined to the problem of recovery of sulphur dioxide from relief gases by freeing it from the liquid and condensate with a minimum loss of heat and using it in building up the concentration of tower acid. In the process of sulphite pulping not more than 0.6 per cent of the digester liquid escapes as condensate with the relief gases (for the acid about 4 per cent of sulphur dioxide and 1 per cent of lime). The blow-off liquid (20 per cent of the digester liquid) is composed of splashed over alkaline liquor and only 5 per cent of vapor condensate. The amount of condensate and that of the lost heat in the process of pulping can be calculated with some exactness only from the total pressure in the digester and the pressure of the saturated water vapors at a given temperature. The partial pressure of sulphur dioxide vapors can be considered for practical calculations as equal to the difference between the total pressure and the pressure of saturated water vapors, whereby carbon dioxide and nitrogen can be neglected because of their slight influence on the volume of water condensate. The content of sulphur dioxide in the relief gases depends on the temperature and rises to a maximum at 120° C., while at a higher temperature it drops at the cost of rising content of water vapors. Because of the increasing consumption of sulphur in cooking, the degree of recovery rises with the increasing content of lime and the increasing strength of the acid. Hence, for the concentration of cooking acid in towers an acid not only of a greater strength but also richer in free sulphur dioxide content must be used. The degree of recovery decreases with the increasing amount of acid per unit of wood and with a decreasing number of blow-offs, because of the increasing excess of sulphur dioxide at the end of the cooking and the resulting greater consumption of sulphur. A rational schedule of pulping must include a discharge or "relief" of air and liquid at the top at an early stage of cooking in order to decrease the consumption of heat, regulate the character of blow-offs and increase the degree of recovery.—C.J.W.

Metal Corrosion in Sulphite Pulping. D. M. Flyate and N. P. Beluikh. Tzentral. Nauch.—Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, No. 2:107-134; C. A. 29:1629.—Tabulated results show that the samples of low-carbon steels and cast irons containing chromium and manganese in place of the deficient nickel gave a satisfactory resistance to acid corrosion when tested under various phases. An addition of a little tungsten and silicon increased the acid resistance and that of copper improved the mechanical properties of steel.—C.J.W.

Optimum Conditions for the Production of Strong (Sulphite) Cooking Acid. I. L. Kagan. Tzentral. Nauch.—Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, No. 2: 27-53; C. A. 29:1629.—The results of study at different mills are reviewed. For production of a strong tower acid from pyrites the optimum conditions are: washing of gases in vertical towers, cooling in apparatus of the Lurgi type and electro-filtration.—C.J.W.

Sulphite Waste Liquors

Sulphite Liquor Lactone and Tsugaresinol. Hermann Emde and Helmut Schartner. Naturwissenschaften 22:743-744 (1934); C. A. 29:2353.—The lactone from sulphite liquors was identified as part of the rosin of *Picea excelsa;* it is identical with tsugaresinol. Changes in rotation can be brought about by sodium ethylate or sodium amylate (by sodium hydroxide a *d*-rotatory hydroxy acid is formed) and are due to racemization of the first carbon atom via a dienol form, not isolated. The biosynthesis of the lactone is thought to be from coniferin via a dehydrogenated lactone. The reaction supports the theory of rosin formation from lignin.—C.J.W.

The Sewage of the Cellulose and Paper Industries. Steinschneider. Gesundh.-Ing. 57:638-640 (1934); C. A. 29:1912.—The character of sewage produced in the different branches of paper manufacture is discussed together with methods of treatment at the plant. The question of economical reclaiming or utilization of certain wastes as well as that of rendering the discharged waste waters non-troublesome in the receiving stream is considered, with particular attention to the sugar content of wastes from the sulphite pulp industry. Fermentation and recovering of the alcohol formed are considered.—C.J.W.

Suitability of Sulphite Waste Liquor as Adhesive for Laying Linoleum. L. Thiele. Kunststoffe 24: 151-152, 307-309 (June, Dec., 1934).—A general discussion of the subject.—C.J.W.

Process for the Manufacture of Alcohol by Fermentation of Liquids Containing Carbohydrate. A/S/ Dansk Gaerings Industri, Copenhagen. Finn. pat. 15,851 (Nov. 18, 1932).—The recovery takes place under the use of 10 kilograms of yeast per 1000 liters of liquor.—J.F.O.

Process for the Use of the Sulphite Waste Liquors for Washing the Gases from Sulphur or Roasting Ovens, and at the Same Time Making Use of the Sulphur Dioxide and the Heat in the Waste Liquor. K. L. Ellila, Lievestuore. Finn. pat. 15,881 (Dec. 30, 1932).—The uncooled sulphite waste liquor is used in the washing tower for removing the selenium, arsenic and other impurities in the sulphur dioxide gas. This waste liquor is then subjected to a vacuum and the sulphur dioxide removed therefrom.—J.F.O.

Composition of Matter and Process Therefor. Ralph W. E. Leach. U. S. pat. 1,977,728 (Oct. 23, 1934).—Ligneous and resinous constituents are precipitated from sulphite waste liquor (suitably after concentration by evaporation) and the precipitate, together with any entrapped matter, is freed from moisture as by mixing with a liquid that is miscible with water (*e.g.,* alcohol) and evaporating, and is then molded with or without addition of fillers, binders and coloring matter.—A.P.-C.

Process for the Evaporation of Liquids Containing Organic Lime Sulphur Compounds. B. N. Segerfelt, Boemia, Czechoslavakia, Swed. pat. 80,858 (Aug. 29, 1931).—The patent concerns a process for the prevention of incrustants forming on the heat transfer surfaces of vacuum or high pressure steam evaporators. The liquid to be evaporated which is of a relatively low specific gravity is treated with the same liquid but of a much higher specific gravity due to previous evaporation; this mixing taking place before or after entrance into the evaporator.—J.F.O.

Miscellaneous Pulping Methods

Nitric Acid Process for the Recovery of Cellulose from Bagasse. John H. Payne. Ind. Eng. Chem. 26: 1339-1341 (Dec., 1934).—By treating bagasse for 1 hour at 90° to 100° C. with 2 per cent nitric acid, boiling 45

min. with 2 per cent caustic soda, bleaching and digesting for 30 min. in 5 per cent caustic soda, there is obtained a 32 to 33 per cent yield of pulp containing 93 to 96 per cent of alpha-cellulose, 6 to 8 per cent of soda-soluble and less than 0.3 per cent of ash. Cost of chemicals for the process is estimated at less than $10 per ton of pulp. —A.P.-C.

Pulping Process. Philippe J. Plancquaert. Fr. pat. 773,179 (Nov. 13, 1934).—Pulp is made from wood, straw, etc., by treating the latter with hot sulphophenolic or sulphonaphthalic acids and afterward treating with a dilute alkali.—A.P.-C.

Purifying Bast Fibers. Francis H. Snyder assignor to Francis H. Snyder, Inc. U. S. pat. 1,983,008 (Dec. 4, 1934).—Fibers such as pita, ramie or sisal, etc., are purified and rendered suitable for use in making paper or textile products by the joint action of a soluble sulphite such as sodium sulphite and a non-carboxylic fatty acid detergent such as sodium lauryl benzenesulphonate.—A.P.-C.

Process for the Digestion of Vegetable Growths to Produce Cellulose. Herman B. Kipper. U. S. pat. 1,987,195 (Jan. 8, 1935).—In Kipper's nitric acid-alkaline method of pulping, air is passed through the digester charge during the acid treatment, which permits of operating at a lower temperature (need not exceed the boiling temperature). The process is particularly suitable for the treatment of waste cotton seed hulls.—A.P.-C.

Heating Device for Wood Pulp Digesters. Einar Morterud. U. S. pat. 1,994,198 (March 12, 1935).—The invention relates to a heater for digesters of the kind comprising a number of cylindrical heating tubes enclosed in a jacket having a polygonal cross section. The main feature of the invention consists in making the polygonal jacket of thin material and surrounding it by a pressure jacket of substantially circular cross section, the space between the two jackets being maintained under substantially the same pressure as that existing inside the polygonal jacket.—A.P.-C.

Circulating System for Pulp Digesters. Frederick W. Adams and George S. Witham, Jr. U. S. pat. 1,991,365 (Feb. 19, 1935).—Circulation is produced by utilizing some of the energy of the steam fed to the digester through the use of an inspirator built of acid-resisting metal.—A.P.-C.

Pulp Liquor Recovery. Elis Olsson. U. S. pat. 1,991,413 (Feb. 19, 1935).—Steam recovered from the hot liquor discharged from the digester is used to raise the temperature of the diluted liquor from the diffusers. —A.P.-C.

Apparatus and Method for Producing Cellulose. Joaquin Julio de la Roza, Sr., assignor to de la Roza Corporation. U. S. pat. 1,991,243, 1,991,244 and 1,991,245 (Feb. 12, 1935).—*No. 1,991,243*—Apparatus for the continuous pulping of cellulosic material comprises a substantially horizontal cylindrical vessel of very considerable length relatively to its diameter. The inlet is in the form of a slightly tapered tube having its smallest end at the digester and communicating at its larger end with a cylinder in which is mounted a reciprocatable piston. The material is fed into the cylinder and is compressed by the piston to a density of up to 30 lb. of dry matter per cu. ft. Pipes leading respectively into the vessel near the inlet end and out of the vessel near the discharge end are provided with check valves that permit the liquor only to enter at the inlet end and to flow out of the vessel at the discharge end. *No. 1,991,244*—This patent covers additional features in the design and construction of the apparatus described in the previous patent; also a continuous pulping process in which the rates of feeding and discharging the materials are controlled by the level of the material in the digesting apparatus. *No. 1,991,245*—Cellulosic material is mixed with a suitable liquor, is compressed to a volumetric density exceeding 12 lb. (dry substance) per cu. ft., and is maintained at this density during the whole of the digestion operation.—A.P.-C.

Method of and Apparatus for Circulating Liquors and Vapors in Digesters. Clark C. Heritage and Vance P. Edwards. U. S. pat. 1,991,211 (Feb. 12, 1935).—Circulation and agitation are effected by means of two gas or vapor lifts inside the digester, one causing circulation only inside the digester and used during the heating up stage, and the other causing circulation to an outside vapor relief and liquor recovery system and being used after the digester has been brought up to the desired temperature and pressure. Each lift consists of a vertical pipe or tube with its lower end near the bottom of the digester and having inside a pipe of much smaller diameter having an open end terminating inside and slightly above the bottom of the larger tube. The external tube of the lift for inside circulation terminates slightly above the level of the liquid in the digester, while that of the outside lift passes through the digester shell near the top and is connected to the relief recovery system. Circulation is produced by delivering steam through the inside pipe of the lift.—A.P.-C.

Production of Cellulose from Lignocellulosic Materials. H. Dreyfus. Brit. pat. 421,379 (June 12, 1933, Jan. 17, 1934).—Lignocellulose materials are treated at elevated temperature (150° to 250° C.) and pressure with organic solvent compositions, *e.g.*, aqueous alcohols, in such a way that the lignin-containing solutions formed remain in contact with the lignocellulosic material for short periods compared with the time required for complete extraction of the lignin; after separation, the solutions are cooled to precipitate the lignin and the solvent recovered is re-heated and re-used for extraction of lignin.—A.P.-C.

Chlorinating Wood Pulp. Pennsylvania Salt Manufacturing Co. Fr. pat. 770,976 (Sept. 27, 1934).—Chlorine gas is dispersed in water under pressure in excess of the solubility of the chlorine in the water, and the water containing the dispersed chlorine under pressure is brought into contact with an aqueous suspension of wood pulp under less pressure (the chlorine gas being delivered into the aqueous wood pulp suspension in the form of very fine gas particles separated by atomized water) and the materials are circulated together to permit action of the chlorine on the wood pulp.—A.P.-C.

Methods of Producing Pulp. Henry Dreyfus. Brit. pats. 416,416, 416,549 and 416,558 (Sept. 7, 1934).—*No. 416,416*—In producing cellulose for paper or for the manufacture of cellulose derivatives from lignocellulosic materials such as wood, straw or grass, in a finely divided condition (*e.g.*, as wood chips or mechanical pulp), the lignin is extracted by solution in an agent comprising an organic liquid containing a carbonyl group or an aliphatic or cyclic ether. *No. 416,549*—Cellulose is produced from lignocellulosic materials by extracting the lignin by means of organic solvents, or mixtures of organic solvents with water, under a pressure in excess of that developed by the solvet or solvent composition. The lignocellulosic materials may be preliminarily treated with hot or boiling water, or water under pressure, or with alkaline or acid solutions, or the solvent or solvent composition may be used in association with small amounts of acid or basic substances. Example: wood chips are extracted with a 50 to 60 per cent aqueous solution of dioxane under an excess pressure of 20 to 25 atmosphere and at 170° to

190° C. *No. 416,558*—In producing cellulose by extraction of lignin as in No. 416,416, the lignin is extracted by solution in a solvent mixture comprising an organic liquid with substanially no dipole moment and a liquid with a dipole moment, or comprising two or more organic liquids with molecules containing groups of differing dipole moments. Suitable mixtures are those of alcohols, ketones, aldehydes, esters or acids with non-polar solvents, *e. g.*, benzene, xylene or other hydrocarbons, carbon tetrachloride or ethane hexachloride, or with less polar liquids, *e. g.*, diethyl ether or di-isopropyl ether.—A.P.-C.

Process for the Decomposition of Straw, Grasses, Reeds and Similar Dried Plant Materials, Especially Wheat Straw, for the Purpose of Manufacturing Animal Fodder and Eventually Raw Materials for the Manufacture of Paper. V. Willemoes d'Obry, Godesberg. Finn. pat. 15,878 (April 4, 1929).—The material is first subjected to saturated steam at high pressure, and then cut up.—J.F.O.

Recent Aids for Cookers and Evaporators. Wollenberg. Papier-Fabr. 32, No. 43: 441-43 (Oct. 28, 1934).—The heating body is made so that the entire unit may be removed with its attendent advantages. Heating tubes are now arranged in an eccentric manner which aids circulation, cutting the cooking time 30 per cent and diminishes foamng. An indicator has been devised which shows the circulation within the tubes and a distant recorder to show the level of the liquor are also among the devices described.—J.F.O.

Circulation Device for the Cooking Liquor in Pulp Digestors. T. Samson, Stockholm. Swed. pat. 81,145 1929).—The digestor is provided with an indirect heating device and a circulation pump, both being placed outside the digester. The pressure side of the pump is connected directly with an end of the heating device—J.F.O.

Beating

Jordan as a Beating Apparatus. N. O. Zeiliger. Tzentral. Nauch-Issledovatel. Inst. Bumazhnoi Prom. Materialui 1934, No. 2:158-196; C. A. 29: 1631.—From a comprehensive literature review and experimental evidence, it is concluded that beating in the jordan and in the hollander beater produce equally good results and the use of the jordan should not be confined to refining operations only. The best beating effect with the jordan is obtained by "separate charge", namely, passing of cellulose only, whereby any desired degree of fineness can be effected. In the use of the jordan by the multiple circulation of the mass, the effect of beating can be increased with the aid of a vertical mill of the Mordern type.—C.J.W.

Beater Device for Paper Stock. Emil Schneebeli, Zurich. Ger. pat. 604,167 (Aug. 28, 1932).—J.F.O.

Beating Engine. A. Larsen, Aalborg, Denmark. Finn. pat. 15,826 (Nov. 22, 1932).—The beating engine consists of a container for the stock and rods or balls are used as the beating medium.—J.F.O.

Method of Defibering Lignocellulosic Material. Judson A. DeCew. U. S. pat. 1,993,148 (March 5, 1935).—Groundwood screenings are dewatered, steamed while simultaneously subjected to a kneading or slow agitative treatment which effects little or no defibering action, and finally passed through a refining engine such as a jordan.—A.P.-C.

End Held Lining for Jordan Engine Shells. Archer LeRoy Bolton, assignor to John W. Bolton and Sons, Inc. U. S. pat. 1,994,061 (March 12, 1935).—The invention provides means for holding the assembled lining together during shipment and until it is almost in position in the permanent shell, such means being at the end and preferably of such a character that they can be removed when the filling is actually in position or before it is in position.—A.P.-C.

Beater. Hamilton D. Wagnon. U. S. pat. 1,988,820 (Jan. 22, 1935).—Positive circulation is produced by means of an inclined runway extending from the bottom of the trough to a point above the top of the walls of the trough, and delivering the stock into a chute which feeds it directly between the roll and bedplate.—A.P.-C.

Method and Apparatus for Controlling Stock Consistence. Tandy A. Bryson. U. S. pats. 1,985,312, and 1,985,313 (Dec. 25, 1934).—*No. 1,985,312*—Variations in consistence are controlled through the changes in speed which they produce in a stock pump. A differential gear is connected on one side to the pump motor and on the other to a small auxiliary motor running at the same speed as the pump motor when the stock is at the required consistence. A change in the latter produces a change in the speed of the pump and hence a rotation of the carrier of the differential gear, and this is caused to increase or decrease the amount of diluting water added to the stock, so as to restore the consistence to the required value. *No. 1,985,313*—The stator of a stock-pump motor is rotatably mounted, suitable means being provided (*e.g.*, a counterweight and spring) to counterbalance the tendency to rotation produced by the reactance set up in the field coils of the stator when the armature runs at the speed corresponding to the desired stock consistence. Variation in the latter produces a corresponding change in motor speed, which in turn varies the reactance in the field coils of the stator, resulting in rotation of the stator. This rotation is used to operate the valve in the dilution water line, admitting either more or less water to the stock line so as to restore the consistence to the desired value.—A.P.-C.

Bleaching

Bleaching Wood Pulp. II. I. Nakashima and S. Oinuma. J. Cellulose Inst. Tokyo 10: 285-289 (1934).—The effect of bleaching on the alpha-cellulose content, copper number, strength, and losses of pulp, etc., and the pH of the liquor were investigated, and tabulated results given. With increase of available chlorine from 1 to 9 per cent the alpha-cellulose content remained constant up to 2 per cent of chlorine and then fell steadily; the copper number was lowest at 2 per cent of available chlorine. Rise in temperature, in duration of bleaching, and in pulp concentration all produced degradation of the cellulose. Maximum strength was obtained with 2 to 4 per cent of chlorine and at 35° C.—A.P.-C.

Bleaching Cellulose Fibers. George A. Richter, assignor to Brown Co. U. S. pat. 1,987,212 (Jan. 8, 1935).—Kraft pulp can be bleached to a high degree of whiteness without any substantial degradation by treating with alkali to obtain a high-alpha-cellulose pulp, bleaching to a moderate whiteness with a hypochlorite solution containing sufficient free alkali to remain distinctly alkaline throughout the bleaching operation, and then treating with dilute solutions of manganates or permanganates.—A.P.-C.

Process of Spraying Materials. Frederick R. Seavey, Albert J. Phillips and Fredrich Olsen, assignors to The Cellulose Research Corp. U. S. pat. 1,986,292 (Jan. 1, 1935).—Paper or pulp in sheet form is treated with bleaching (*e.g.*, sodium bisulphite) or other solution by passing under a hood provided with nozzles for atomizing the bleaching solution and with baffles on the sides of the hood for catching large drops and preventing them from falling on the sheet and staining it.—A.P.-C.

Process of Bleaching Paper Pulp. Francis H. Snyder,

assignor to Snyder Maclaren Processes, Inc. U. S. pat. 1,991,824 (Feb. 19, 1935).—The pulp is treated in aqueous suspension with finely divided zinc and sulphur dioxide. After completion of the bleaching, excess of calcium or magnesium carbonate is added to neutralize the acidity and the excess of insoluble carbonate is left in the pulp. —A.P.-C.

Process of Bleaching Pulp. Clark T. Henderson. U. S. pat. 1,990,942 (Feb. 12, 1935).—Pulp is treated with a solution containing hypochlorous acid, carbon dioxide, calcium chloride and calcium bicarbonate (prepared by passing chlorine water in contact with calcium carbonate), washed with fresh water or with lime water, and bleached with sodium or calcium hypochlorite solution. Saving in time and total chlorine consumption, reduction in loss of fiber and in loss of strength are claimed.—A.P.-C.

Method and Apparatus for Bleaching and Refining Pulp. Carl B. Thorne. U. S. pat. 1,989,571 (Jan. 29, 1935).—The invention provides three-stage bleaching: (1) low-density, chlorine-water or chlorine-gas stage; (2) high-density (15 per cent or more) hypochlorous bleaching stage; (3) low-density hypochlorous bleaching stage. The apparatus comprises a mixer in which the stock at 3 per cent to 6 per cent consistence is thoroughly mixed with chlorine-water or chlorine-gas and thence it passes to an absorption tower in which just sufficient agitation is maintained to prevent settling of the fiber and through which the stock takes a predetermined length of time to pass. Means are provided for washing, treating with suitable chemicals (*e.g.*, caustic soda) if desired, and concentrating between the different stages. Chlorine-gas which may be given off from the stock during the first two stages is passed in a tower in countercurrent to white water.—A.P.-C.

Device for the Bleaching of Pulp and Similar Materials. Gebr. Bellmer, Niefern, Baden. Ger. pat. 604,950 (Sept. 6, 1933); addition to Ger. pat. 585,146.—J.F.O.

Process and Device for the Preparation of an Aqueous Chlorine Solution from Liquid Chlorine and Water. G. Ornstein, Berlin. Swed. pat. 80,734 (Sept. 19, 1932). —Liquid chlorine and water are introduced through separate lines into an enclosed container which also contains an outlet for the finished aqueous chlorine solution. The liquid chlorine is introduced through the bottom of the container and the water at the top, thus effecting a counter current mixing.—J.F.O.

Process and Device for the Manufacture of Bleaching Powder. I. G. Farbenindustrie A. G., Frankfurt a.M. Swed. pat. 80,992 (Oct. 20, 1932).—The process takes place in a mechanical apparatus through the action of chlorine on calcium hydroxide.—J.F.O.

Sizing

Surface Phenomena in the Production of Paper and Cellulose. II. Wetting as a Measure of the Degree of paper sizing. I. I. Kovalevskii. Bumazhynaya Prom. 13, No. 10-11:21-33 (1934); C. A. 29:2353.—The quantitative relation existing between the process of sizing and the laws of capillarity and the close connection between the degree of sizing and the critical angle of wettability are discussed. A tentative method for testing the surface properties of paper by the selective wettability and the experimental data obtained in determining the critical angle of various grades of paper are described. The improved quality of sizing is indicated by the increased selective wettability with benzene or any other nonpolar liquids in the system: paper-hydrocarbon-water. Such changes in the selective wettability are closely related to the degree of sizing. The method of measuring the critical angle of wettability on the boundary line of paper-hydrocarbon-water can be used for the determination of the degree of sizing of paper and board, as well as in the study of a number of production problems. This supplies a definite physical-chemical constant (the magnitude of selective wettability), which can be compared with the analogous properties of a solid material; it is highly accurate and gives a constant and quantitative indication of the changes in the hydrophobic properties of paper. The method can be adapted to the study of the changes in the surface properties of pulp in the process of beating and for the determination of wettability (permeability) of wood chips.—C.J.W.

Use of Rosin Soap in Paper Sizing. P. Zotov. Bumazhnaya Prom. 13, Nos. 10-11:88-93 (1934); C. A. 29:1630. —Methods of preparation and use of rosin soap in paper sizing are described. The results are in every way comparable to those obtained with the common rosin size. The procedure simplifies the operation, though the cost of the rosin soap is somewhat higher than that of the common rosin size.—C.J.W.

Review of the Principles of the Application of Bone Glue in the Paper Industry. Richard Silberberg Kunstdünger u. Leim 31:296-305 (1934); C. A. 29:1244.—A discussion of using bone glue for engine sizing pulp or for tub sizing or for coating paper.—C.J.W.

Process for the Sizing of Paper and Means to Produce This Paper. Haarlan Paperitehdas O.Y., Tammerfors. Finn. pat. 15,764 (March 4, 1931).—The sizing of the stock takes place with a solution of dissolved rubber or gutta percha, bases or liquors of saponified liquids or size milks in a quantity of from 20 to 85 per cent of the finished product. A catalyzer such as borax is used.—J.F.O.

Rosin Size and Method of Manufacturing the Same. George James Manson, assignor to Manson Chemical Co. U. S. pat. 1,990,457 (Feb. 5, 1935).—Rosin is emulsified by grinding cold with clay, water and alkali, preferably in the proportions of 85 rosin, 15 colloidal clay, 100 water and 2 alkali (such as caustic soda).—A.P.-C.

Coating Methods

Composition Suitable for Coating or Filling Paper. Charles M. Champion, assignor to R. T. Vanderbilt Co. U. S. pat. 1,984,173 (Dec. 11, 1934).—A dry composition adapted to be shipped and stored and mixed with water when used comprises 84 per cent calcium carbonate, 12 per cent alum and 4 per cent slaked lime.—A.P.-C.

Composition for Coating Paper. Arthur H. French and Lowell O. Gill, assignors to A. E. Staley Manufacturing Co. U. S. pat. 1,985,368 (Dec. 25, 1934).—A heated mixture of starch and glycerin in gelatinized condition is applied to paper as a plastic layer, and over this there is applied a layer of greaseproof material.—A.P.-C.

Coating Composition. Abraham P. Furman, assignor to Ira Furman. U. S. pat. 1,992,202 (Feb. 26, 1935).—Material suitable for coating stencil sheets is obtained by dissolving fibroin in an ammoniacal salt solution, such as an ammoniacal copper, nickel, zinc, cadmium, cobalt, etc., salt solution. If it is desired to have the composition or the coated material substantially colorless, this may be effected by addition to the composition or by treatment of the coated material with a dilute acid solution and subsequent washing to remove the acid.—A.P.-C.

Coating Paper with Oil-Synthetic Resin Varnish. Robert P. Courtney, assignor to Bakelite Corp. U. S. pat. 1,987,549 (Jan. 8, 1935).—A penetrative oil-synthetic resin varnish is applied to the surface of a porous material such as paper without any substantial penetration of the latter by the varnish, by first forming an emulsion

of the varnish in a volatile non-solvent liquid such as water and then applying this emulsion to the paper.—A.P.-C.

Apparatus for Coating Paper and the Like with Lacquers. John J. Case, assignor to John Waldron Corp. U. S. pat. 1,993,772 (March 12, 1935).—In order to prevent flaking, which occurs with certain forms of paper stock, means are provided for applying the lacquer under pressure; the machine is designed to apply the lacquer uniformly and to control the quantity of lacquer or the thickness of the coating applied. Only a small amount of lacquer is present in the tray in which the lacquer-applying roll rotates, and it is replaced at the same rate as it is used up to have minimum exposure to the air.—A.P.-C.

Coating Composition Suitable for Use on Paper, Pulp, Board, Wood, Etc. Charles M. Boyce, assignor to John R. Ditmars. U. S. pat. 1,978,406 (Oct. 30, 1934).—A coating composition forming transparent films contains gelatin and the reaction product formed by heating glycerin for 3 hrs. with a molecular proportion of phthalic anhyride at about 280° C.—A.P.-C.

Coating Paper Surfaces for Moisture-Proofing. E. R. Campbell and Impermeable Products, Ltd. Brit. pat. 421,499 (Nov. 24, 1933).—Paper, cardboard, etc., are coated on one or both surfaces with a solution of unvulcanized rubber and, after partly drying in a heating chamber, a coating of cellulose ester or ether is applied, the solvents of the latter being chosen to give "key" to the rubber coating. Fillers, coloring matter, metal powders, etc., may be incorporated with either coating.—A.P.-C.

Apparatus for Roll Coating. Charles A. Dickhaut, assignor to John Waldron Corp. U. S. pat. 1,987,183 (Jan. 8, 1935).—In roll-coating where a doctor roll is used for evening the layer of color on the coating roll, the doctor roll is cleaned by means of a doctor blade and is dried by a jet of air directed on its surface immediately after it leaves the doctor blade.—A.P.-C.

Paper Coating. Donald B. Bradner, assignor to The Champion Coated Paper Co. U. S. pat. 1,989,036 (Jan. 22, 1935).—In roll coaters of the types described in Bradner's U. S. pat. 1,838,358 or in Münch's U. S. pat. 1,847,065, a roll is provided for prewetting the paper either the water or, preferably, with the coating composition.—A.P.-C.

Process for the Production of High Finish or Printing Paper. Peter Spence & Sons Ltd., Manchester. Finn. pat. 15,766 (Jan. 13, 1932).—The surface consists mainly of finely divided calcium sulphate which has been prepared in the usual manner with concentrated sulphuric acid and brought into an amorphous form.—J.F.O.

Fillers

Use of Sludge from the Causticizing of Green Liquors in (Paper) Filling. N. Yu. Markov. Bumazhnaya Prom. 13, No. 8:35-41 (1934); C. A. 29:1244.—The filter cake, whether raw or calcined, is not suited for production of paper fillers, because the product is not of uniform composition, is excessively alkaline with a high content of lime and silica and cannot be profitably neutralized with carbon dioxide (as compared with the cost of kaolin). Its use in refining of waste paper may be profitable.—C.J.W.

Manufacture of Paper Embodying Alkaline Earth Carbonate Fillers. Colver P. Dyer, assignor to Merrimac Chemical Co. U. S. pat. 1,993,265 (March 5, 1935).—Carbon dioxide or a gas or reagent containing it is introduced into the stock and equilibrium condition attained by thorough intermingling; the carbonate filler can then be introduced without apparent deteriorative action on the sizing, a soluble base such as soda ash is added, and the stock is sheeted on the paper machine as usual. Formation of filler spots, which sometimes occurs, can be overcome by using a (preferably distinctly alkaline) floc of aluminum hydroxide instead of soda ash.—A.P.-C.

Drying

Utilization of Bagasse. II. Drying of Bagasse Board. H. Kato. J. Cellulose Inst., Tokyo 10:289-293 (1934).—Equations for adiabatic parallel flow and isothermic counter-flow are deducted.—A.P.-C.

Drying Fiberboard and Paper. Carl F. Brodin. Brit. pat. 417,168 (Sept. 28, 1934).—Plates or sheets of wet fibrous material are carried between pressing rolls by a web or rubber sponge so that the liquid is transferred to the web.—A.P.-C.

Asbestos-Faced Drier Felt. William A. Barrell. U. S. pat. 1,991,366 (Feb. 19, 1935).—The felt comprises two complete plies each constructed of interwoven body warp and filling strands, combined with asbestos binder warp starnds interlocked with filling strands of both plies and disposed to cover substantially the entire outer face of one of the plies. The total content of asbestos in the felt is contained in the binder strands.—A.P.-C.

Drier Felt for Use on Paper Making Machines. Thomas Hindle. U. S. pat. 1,994,280 (March 12, 1935).—The invention provides a new construction of two-layer fabric, which is interbound in the weaving by a small proportion of the warp threads, which are all coarse and of similar diameter. The several warp threads forming the weave have equal weaving contraction, so rendering the fabric suitable for weaving in combination with the creel system.—A.P.-C.

Drier Mechanism for Paper Making Machines. Charles W. Valentine and Alfred Helin, assignors to The Bagley & Sewall Co. U. S. pat. 1,991,432 (Feb. 19, 1935).—The invention provides an arrangement for the steam inlet pipe such that the steam is delivered into the drier cylinder with a jet action and that the steam does not come into contact with the journal through which it passes. The siphon pipe is supported at a point intermediate its length so as to avoid undesirable deflection towards the inner wall of the cylinder.—A.P.-C.

Festooning Mechanism for Loop Driers. Alpheus O. Hurxthal and Edgar B. Kerst, assignors to Proctor and Schwartz, Inc. U. S. pat. 1,990,406 (Feb. 5, 1935).—In festooning mechanism in which the girts or bars supporting the festoons are periodically or continuously rotated, the trailing girt of the pair between which the new loop is to be formed is rotated towards the preceding girt of the pair. In apparatuses where the girts are not intended for relative rotation with respect to the conveyor, a guide is mounted between the conveyor and the web-feeding mechanism which, when rotated in the direction of feeding of the web to the conveyor, directs the web between the girt at which the pinching of the web occurs and the succeeding girt on the conveyor.—A.P.-C.

Air Seal for Driers. Richard C. Moore, assignor to The Coe Manufacturing Co. U. S. pat. 1,987,410 (Jan. 8, 1935).—In a sheet board drying chamber wherein the drying fluid is maintained at a pressure above atmospheric at the discharge (dry) end and below atmospheric at the feed (wet) end, outward leakage of drying medium at the dry end and inward leakage of air at the wet end are prevented by providing a receiving section and a discharging section, adjacent respectively the feed and discharge ends of the main chamber, and maintaining the air pressure in these sections at approximately the same value as the drying-fluid pressure in the respective adjacent portions of the drying chamber.—A.P.-C.

Experiments in Printing*

By P. H. Prior[1]

Abstract

This account describes the use of a hand-driven proofing press for experiments on the essential factors of printing, namely, type surface, ink film, the surface to be printed on (usually paper), and pressure. The press gives uniform results which have enabled the pressure and ink film to be measured and controlled, so that different papers can be compared for printing qualities. It has been found that ink deposits on paper show considerable irregularity when examined under a microscope, and that this irregularity controls the general appearance of the print. Various hypotheses have been examined to account for the un-inked areas, and such evidence as is available favors a lack of contact between the ink film and the paper due to their relative contours at the moment of printing, while surface tension effects and wettability appear to be unimportant.

We have found the press very useful for predicting the relative behavior of different papers on a commercial press, with regard to evenness and depth of printing, strike-through, and, less directly, set-off. It is very desirable to be able to give these quantities numerical values, but at present the estimation of printing results is largely a matter of comparison and personal opinion, so that quantitative tests are not easy to devise. It may prove possible to measure the over-all depth of black, or color, photometrically, although with practice the eye becomes so sensitive to differences that it is not easy to find an instrument with a sufficiently high order of accuracy and stability. However, assuming such an instrument were available, one might use a standard ink, ink film, and pressure, and determine the following quantities:—

1. *Average blackness of inked surface.*
2. *Inherent transparency of the paper.*
3. *Extra show-through due to penetration.*
4. *Set-off properties (by setting-off from the paper on to a standard surface under stated conditions of time and pressure, and measuring the darkness of the ink transferred).*

These measurements would be helpful, but some important qualities, such as the general appearance of half-tone printing, would still be left for mental evaluation.

A large proportion of the paper manufactured is printed, but there is not a great deal of literature on the technical problems connected with the printing quality of paper. A number of articles explain the troubles that occur, and give a general account of possible causes (*1, 2, 3, 4, 5, 6*). There are also fairly full accounts of paper testing methods for smoothness and oil penetration, which are believed to relate to the printing qualities (*7, 8, 9*); and recently more detailed accounts have been given, particularly by Mr. Foweraker of the Western Division of our Technical Section (*10, 11*) and Julius Bekk, of Berlin (*12, 13, 14*). The former demonstrated a small-scale printing test machine, while Dr. Bekk has devised instruments and carried out tests, many of which are directly related to printing: both of these authors are employed in the printing industry.

It will be recalled that there are three main printing processes: letterpress from raised type, litho (and off-set) from a flat surface, and intaglio or gravure from an engraved plate. [A full account of these appears in an earlier paper (*16*)]. At the present time letterpress is the most extensively used process, and the experimental work to be described has been done on a flat-bed cylinder-impression machine, but the results should be largely applicable to the platen and rotary types of letterpress, and to a lesser degree will bear on litho and gravure.

There are four essentials in printing: a surface to be printed from, an ink film, a surface to be printed, and pressure. For results to be both satisfactory in appearance and economical, these four factors must have definite properties which will differ somewhat according to the conditions, such as the kind of paper, ink, and speed, in printing. It happens that a change in any one of these factors while giving improved results in one direction often gives trouble in another; for example, increased pressure gives a more uniform transfer of ink, but embosses the paper and wears the type. Thus every printing operation consists of a series of compromises working between fairly close limits.

Experimental Proofing Press

It was realized that the most promising line of experiment was to carry out printing under controlled conditions, and the choice lay between using a specially designed machine and a small press such as is sold for proofing purposes. A proofing press was adopted after preliminary tests on two papers, known to print differently in full-scale practice, had shown that these differences were reproduced on the smaller scale, and we have been fortunate in finding that the press chosen (a Verax Proofing Press as illustrated in Figs. 1, 2A, 2B), has continued to give results which are even more satisfactory than we anticipated (*17*).

The heavy travelling bed A runs on rollers G on rails fixed to the frame of the press H. The bed carries the inking table B, and a subsidiary bed F, which is very finely adjustable in height, being itself supported on wedge-shaped bearers; this subsidiary bed carries the Block I. At each side the main bed carries flat bearing surfaces J against which the cylinder is held by its weight and its shaft support K, which latter is fixed to the main frame H. The cylinder and travelling bed also carry teeth whose pitch line corresponds with the level of the bearing sur-

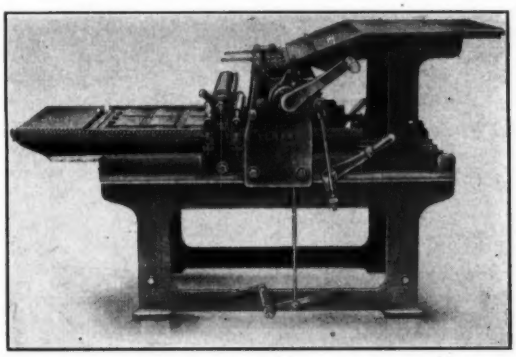

FIG. 1
The Verax Press.

* Presented at a meeting of the London Division of the Technical Section of the Papermakers' Association of Great Britain and Ireland, London, England, December 14, 1934.

[1] Member TAPPI, Research Chemist, Albert E. Reed & Company, Ltd., Aylesford Paper Mills, Larkfield, Kent, England.

faces, and which serve to drive the bed under the cylinder when the latter is rotated. The inking rollers C1, C2, C3, are carried in adjustable bearings which are attached to the main frame; C1 is steel, driven by a pinion, and in turn drives, by friction, C2 and C3, which are gelatine composition rollers. By means of the lever P the rollers can be lifted out of contact with the block and separated from each other, which allows the inking operation to be temporarily suspended and also prevents flats forming on the composition rolls when standing idle.

The part of the cylinder corresponding to the printing area of the bed is 40 thous[2] less in radius than the end portion which runs on the bearing surfaces; this leaves a gap over the block which is filled with suitable packing material P to give the correct pressure between the paper and printing surface. A portion of the cylinder is cut away, and contains arrangements for fixing the packing, and grippers for carrying the sheet. The grippers open and close by a cam action at the correct points for feeding purposes, while micrometer guides on the cylinder and feed board enable paper to be placed in an exact position when register is required. Arrangements are made for lifting the cylinder by means of an eccentric in the shaft support, operated by the lever N, and during the return stroke after printing this is done automatically. There are numerous other devices of less importance common to printing presses, and the whole is very massively built.

The operation of printing is shown diagramatically in Fig. 3. The block is brought up to the level of the bearers by means of the adjustable bed, suitable packing is put on the cylinder, and ink distributed on the ink plate and rollers. With the cylinder and bed in position 1, the grippers are open and ready to take the paper. As the cylinder is rotated and the bed travels forward, the block is first inked by the composition rollers and then passes under the cylinder and the paper (shown in position 2), and printing takes place. At the end of the stroke (position 3) the paper is delivered on to the special supports Q, the grippers opening at exactly the right moment; meanwhile the inking rollers are taking a fresh supply of ink from the table, and the cylinder is lifting ready for the bed to be run back in preparation for the next impression.

We have measured the maximum speed at which the bed can be driven by hand and found it to be 200 feet per minute at the point of impression, which compares with 120 feet to 1,000 feet on commercial presses. Up to our highest speed we have not observed much change in the quality of the printing obtained, and it has been my experience that the same holds true for the commercial range of speeds. While speed makes a considerable difference in liability to set-off and probably to steadiness of impression, and while it would obviously be an advantage to test at higher speeds, speed alone does not have such an overwhelming effect on printing quality as to alter seriously the experimental results.

[2] It has been convenient to use the term "thous" = 1/1000 inch in cases of engineering quantities, and μ = 1/1000 millimeter, where microscopical values are entailed. The comparative values are 1 thou = 25.4. μ. Thus paper 4 thous thick = 100 μ (approx.).

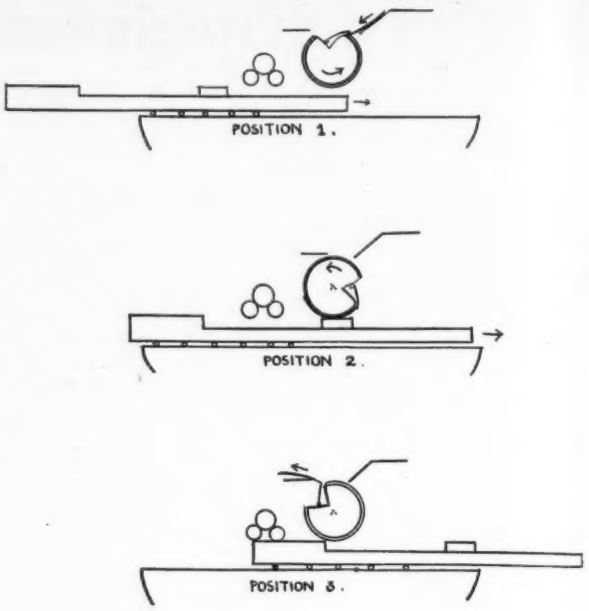

FIG. 3
Diagram of printing operation.

Various designs of block have been considered for test purposes, some with type matter and others with halftones, but the most generally useful in this series of experiments has been a plane area, or "solid." The surface in practice is usually type metal, zinc or copper, and is supported on a wooden or metal base so that the total height is 917 thous. For many purposes we have used a plate of metal or a glass microscope slide (3 x 1 inches) held by a brass holder, the plate can be removed for inspection and weighing before and after printing, and an additional advantage of the glass is the possibility of inspecting the ink film by transmitted light. It has been found in practice that the results from the glass and metal surfaces are similar.

The block is held in lateral position on the bed with the aid of a metal chase, wedges, and quoins, as in commercial printing; before using the press an engineer's straight-

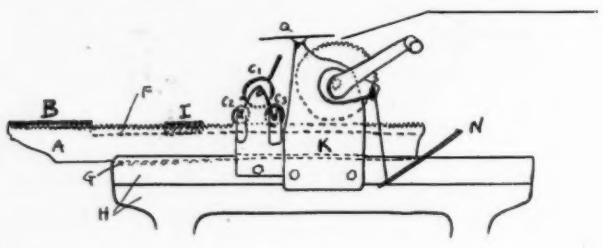

FIG. 2A
Diagram of experimental press.

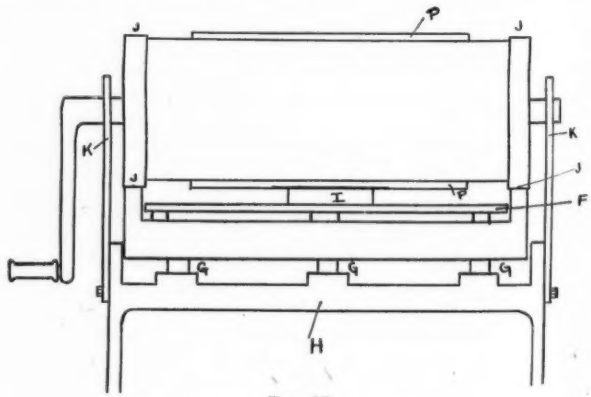

FIG. 2B
Cross-sectional view of press at moment of printing

edge is laid across the bearing surfaces, and the top of the block brought up to this level with the aid of the adjustable bed. This must be done before the final tightening of the quoins, which tends to make the block rise, an effect easily overcome by the printing pressure, but interfering with the adjustment. It is convenient to compare two papers by pasting strips side by side on a paper support, the paste being applied at the edge only, and to print the pair together on a block wide enough to cover both.

An essential requirement is uniformity in inking and printing results. To obtain consistent duplication of the ink film it is necessary to run the bed backwards and forwards several times (three is usually sufficient), when a constant quantity of ink is deposited on the block. Each printing removes a certain proportion of the ink, causing the depth of color to decrease by imperceptible steps; approximately .5 grams of ink are necessary to ink up the press, and a 3 x 1 inch block prints off 0.001 grams each time. Successive printings confirm the consistency of operation by producing a very regular series of results.

Pressure Used In Printing

Experiments were carried out to find the range of pressure that can be employed. If the pressure is too low the print is patchy and uneven, and the upper limit is set by the embossing of the paper, the strain on the press and, in commercial practice, the possibility of wear and damage to the type.

As previously described, the printing portion of the cylinder is less in radius than the bearers by 40 thous, thus leaving a gap over the block. This is filled by packing of a resilient nature, such as paper, which is initially thicker than 40 thous, but which is compressed during printing and thus acts as a spring thrusting the paper against the block. At the same time, the cylinder and bearings give somewhat so that the gap is rather more than 40 thous at the moment of impression; for example, a sulphite paper packing of 20 layers measuring 50 thous with an ordinary micrometer, compressed to 44 thous during printing. It is clear that with a given packing the degree of compression will provide a means of measuring the pressure if the relationship between the two quantities is known. The experimental procedure was to measure the gap during printing by leaving a narrow edge on a 3 x 3 inch block free from packing, and placing there some small pellets of wax. These were flattened at the moment of impression, and were afterwards measured with a micrometer; the results were reasonably consistent. The compression curve (Fig. 4) was found by the apparatus described in Appendix A, the pressure being obtained with a Mullen burst tester, and in practice the identical packings and paper used for printing were compressed to the thickness as shown by the pellets and the corresponding pressure read from the gauge. A possible source of error is a permanent set of the paper, but it is found in practice that at the higher pressures the paper packing is very resilient and can be compressed a large number of times without giving appreciably different results.

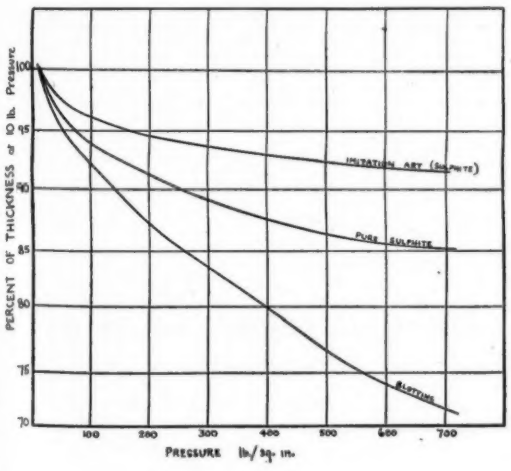

FIG. 4
Compression curve for paper packing.

Another error is introduced, as the time taken to compress the packing for test purposes is longer than that taken during printing. The effect clearly tends to make the pressure figures on the low side.

The pressure required varies with the kind of paper being printed and typical results are given below:

Imitation art paper and packing	Pressure lb./sq. in.	Remarks.
16 sheets of packing	240	Definitely too light.
18 sheets of packing	750	Normal full impression.
20 sheets of packing	1000	Press working stiffly and heavy embossing.

Newsprint. Pure sulphite packing	Pressure lb./sq. in.	Remarks.
19 sheets of packing	200	Barely enough.
20 sheets of packing	290	Slight impression.
	8/900	Heavy embossing.

The error involved in these experiments may be as much as 50 per cent, but the order of the pressures used is shown, and it is hoped that more refined methods will follow.

The spring effect of packing and the pressures employed throw some light on the degree of accuracy of level required in the block surface, and on the choice of hard and soft packing. With hard packing compressed to the equivalent to 200 pounds per square inch, a decrease of compression on lowering the level of the block by 1 thou corresponds to a reduction in pressure of approximately 40 pounds; at higher pressures the effect of 1 thou becomes greater. With soft packing a similar decrease only causes half the fall in pressure. The disadvantage of the soft packing is the greater deformation in the paper, giving embossing and poor outlines. On the other hand, hard packing reveals any irregularities of the printing surface, but will give the best results, and, where this is satisfactory, a "kiss" impression can be given which, nevertheless, corresponds to several hundred pounds per square inch.

It is necessary to explain why all printed paper is not heavily embossed at the pressures used, and also why some papers emboss more than others when printed under identical conditions. An important factor is the power of recovery of the paper after distortion during printing. At low and medium pressures the sheets show little or no embossing after printing and, as the pressure increases, embossing shows more on some papers than others; for example, newsprint shows less than imitation art. By inserting under the paper a thin piece of lead foil, which is not resilient, the degree of embossing that occurs during printing is shown, and this is quite considerable even at low pressures. However, the paper partially springs back to its original form; a good deal of this recovery takes place immediately, but the embossing that remains gradually fades, and after some hours will be found to be considerably less.

Ink Film

The ink film is an essential in printing; if it is too thin the appearance of the print is grey; on the other hand, excessive ink leads to poor half-tones, "set-off," and dirty running generally, and also to "show-through." There is

little doubt that the less ink required the better, but it sometimes happens that various other factors tend to cause poor printing results, such as insufficient impression from blocks with a bad level, or paper with an uneven surface, and in this case excess ink often has to be applied to cover up the defects. The thickness of the ink film has been measured by using a microscope slide as the block, and weighing it before and after printing. The average thickness of the film has been calculated in μ (thousandths of a millimeter) from the area and weight of the ink (about 3 mg. on a 3 x 1 inch slide), and assuming that the specific gravity of the ink is 0.9. Typical results are shown below:—

CASE 1.—NEWS INK; NEWSPRINT; NORMAL PRESSURE

Result:—	Light Film. Too grey	Normal Film. Normal	Heavy Film. Excessive ink
Before printing	1.1 μ	2.1 μ	3.1 μ
After printing	0.65 μ	1.0 μ	1.3 μ
Thickness of film on paper	0.45 μ	1.11 μ	1.8 μ
Per cent Transferred	42	52	58

CASE 2.—ART INK; COATED ART PAPER; NORMAL PRESSURE AND INK.

Film on Block.	Before printing	2.4 μ
	After printing	0.6 μ
	Thickness on paper	1.9 μ
	Per cent Transferred	75

CASE 3.—(EFFECT OF PRESSURE) SPECIAL "SHORT" INK; NEWSPRINT; NORMAL INK FILM.

	Light impression	Normal impression	Excessive impression
Before printing	2.25 μ	2.1 μ	2.2 μ
After printing	1.45 μ	1.1 μ	1.05 μ
Thickness on paper	0.8 μ	1.0 μ	1.15 μ
Percent Transferred	35	48	52

Again there is considerable liability to error, but the results indicate the order of the phenomena, and it can be seen that the film on the block is approximately 2 μ (0.08 thous), and that half of this is transferred to the paper, which is usually about 100 μ thick (4 thous), hence the film is relatively thin in comparison.

When the ink film was magnified under the microscope it was found to be very irregular and to consist of alternate thick and thin areas which form a kind of network which is best described as reticulation. The effect is shown in the photo-micrographs (Figs. 5A, 5B) and varies with different inks. It is almost certain that reticulation is due to the sticky nature of the ink which causes it to draw out into small threads when the inking rollers leave the block, in a similar manner to a thread of syrup being drawn out by a spoon. The threads break when they reach a certain length which depends on the exact nature of the ink, and fall back into little heaps, again as happens in the syrup tin,

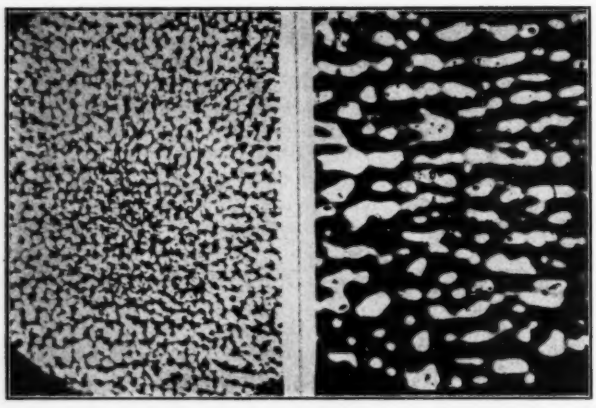

FIG. 5A FIG. 5B

Fig. 5A. Reticulated ink film on glass slide × 50. A. "Short" ink. Fig. 5B. Reticulated ink film in glass slide × .50. B. News ink.

FIG. 6A FIG. 6B FIG. 6C

Fig. 6A. Newsprint × 50 (by surface illumination). Fig. 6B. Newsprint × 50 (by transmitted light). Fig. 6C. Print on coated paper by transmitted light (not same letter as on News).

and these heaps spread a little, but not completely. The heaps will be more prominent in the rapid sequence of inking and printing than they are when inspected after some time has elapsed. This character of the ink film is important in that it must contribute to some extent to the irregularity of distribution of the ink on the paper, and on this point we have found some clear examples which will be described later.

Ink Deposit On Paper

The ink film and pressure have been investigated, and it has been shown that various type surfaces do not differ greatly in their results; it is now possible to consider the part played by the paper. In commercial printing it is not easy always to distinguish between variations due to the paper itself and those due to other factors in the press room. In practice there is a considerable range of difference in the quality of individual copies from one press even if the paper is known to be uniform. For this reason when comparing two supplies of paper it is often misleading to draw conclusions from a few individual copies. However, if the papers are really different there will be a cumulative trend in favor of one paper, and this is emphasized if the two papers are printed alternately on the same press.

Ideal printing embodies an even deposit of ink of sufficient depth of color, which conforms to the outline of the printing surface, and is not visible from the back of the paper; it is essential also that no ink should be deposited on areas meant to be blank. These qualities may be separated as evenness of deposit, freedom from show-through, and freedom from set-off.

Under the microscope an ink deposit on paper is seen to be quite irregular, even with print that is satisfactory when viewed with the unaided eye. Photomicrographs (Figs. 6A, 6B, 6C) show that small areas and fibers are practically free from ink. The clearness of detail and general appearance of the print seems to be based on these microscopic irregularities, and where they are excessive the print suffers. These un-inked areas are probably due to a number of different causes, and it is possible to put forward various hypotheses.

It has been mentioned already that the ink film is uneven, and there is evidence that some of the irregularity of deposit is due to this cause. Laboratory sheets made from fine mechanical pulp fibers (separated with a fractionating screen), print with a pattern closely corresponding to that of the ink on the block. Very smooth and coated papers also show the same effect, although it may be produced in this case at the separation of the paper and block rather than by the original reticulation. It would be a great advantage for testing work if an ink giving a level film were available, but at the moment we have to rely on the reticulation being constant with a given ink, so that in

comparative tests differences are due to factors in the paper. Some of the minute un-inked areas are almost certainly due to this reticulation, but on the whole, as shown in the photomicrographs, the thin patches are small in comparison with a type face.

There is also evidence that ink is squeezed out from small, hard, smooth surfaces, such as small type faces and fibers, under the heavy pressure of printing. This is clear in the case of coated paper and greaseproof, and is a possible explanation of the cases where smooth sulphite fibers or shives tend to be free from ink. For this squeezing to take place, the minute surfaces will need to take the full pressure, and will tend to occur where there are thick places in the paper. There is little evidence that the ink flows apart from squeezing, as even thin news ink is too viscous to flow readily along surfaces or into the pores of the paper. An attempt to get news ink to rise in a glass capillary confirmed the slow rate of flow, while dissection of the paper under a microscope showed the ink to be on the surface rather than in the body of the paper.

A third possibility is that uninked spots are caused by the ink failing to adhere properly to the fibers, which may repel the oil in a manner similar to the repulsion of water by a greasy surface, the fundamental cause being surface tension; it is commonly stated that cellulose is an oil-repelling substance. I have not been able to find any evidence in support of this explanation. Evidently the fiber cannot be seriously lyophilic under normal printing conditions or the trouble would be far more noticeable, also ink will adhere to cellophane although this substance provides other difficulties due to smoothness and non-absorbency. The surface tension hypothesis does not easily explain some experiments which show that moist paper prints more deeply than dry paper even when there is as much as 100 per cent water present.

A fourth explanation of the uninked areas is that the ink and fiber never come into contact owing to the relative contours of the block, ink, and paper surfaces. We can assume the block to be relatively smooth except in unusual cases, but the ink film is so thin in comparison with the paper thickness—an average of 2 μ against the 100 μ of a typical printing paper—that it is possible for there to be hollows in the paper surface which are deeper than the ink film immediately above. A great deal will depend on the levelling up of the paper surface under the printing pressure, which is not an easy process to observe directly. (Appendix B describes an apparatus which throws some light on this problem.) In the case of deep pits or excessive wire-mark, however, it is fairly evident that the hollows are not levelled out, especially as in some cases the wire-mark still shows on the print after the paper has been heavily supercalendered. An interesting demonstration of the effect of increasing pressure is given by the use of a slightly wedge-shaped block, or one in small steps; alternatively, the packing papers may be arranged in thickness to give varying pressure with a single printing. The hollows in the paper which remain sufficiently deep to prevent ink contact may be due to wire-mark, to clots in formation causing the block to bridge part of the paper, and in some cases, areas of paper have an open texture where large fibers (which may be 20 μ thick when compressed) have gaps between them. One may account for the better printing of damp paper, the greater flexibility of the wet fibers causing the surface to flatten out more than with dry paper.

There is a possibility that gloss and smoothness tests will indicate the printing smoothness and be easily applied, but the former is carried out without pressure and in some cases definitely does not correspond with evenness of printing, and it has not been proved in practice that the smoothness test (by air flow or otherwise) more than roughly agrees. A remaining cause of un-inked spots is the picking of inked fibers off the surface, but this is a local effect and recognized by the shape of the fiber removed.

To sum up: in the absence of decisive proof I am led to believe from cumulative evidence that the most prominent cause of the microscopic irregularities in the ink deposit is the lack of contact due to surface hollows in the paper at the moment of impression; squeezing out, ink reticulation, and fiber picking also cause variations. I cannot find that surface tension effects play any serious part in normal printing, which I think employs such conditions of time and pressure that all fibers are completely wetted by the oil, provided that the two materials actually come into contact.

Show-through

The second quality of idea printing is freedom from show-through on the back of the paper. Part of this will be due to the inherent transparency of the uninked paper, which may be seen by placing it over black printed matter, but in some cases the show-through appears more prominently than this. I do not propose to deal with this very fully, but, as explained earlier, it seems as if the ink pigment remains near the surface while the oil base (which may contain an oil-soluble blue dye) penetrates further.

Set-off and Drying

Set-off is one of the most serious troubles encountered. It can occur at varying times after printing, which may be a fraction of a second in the case of the second-impression cylinder and turner bars of a high-speed rotary, or the ink may set-off several hours after leaving the press. The dryness of the ink will be one factor, and this may be caused either by the oil medium being absorbed, by the loss of fluidity on the ink becoming stationary on the fibers (thixatropic or setting properties), or a thin skin may form on a linseed oil ink. It is doubtful, however, whether any of these forms of drying take place sufficiently rapidly to prevent set-off in the first few seconds after printing, and it is common knowledge that practically all ink deposits can be smeared with the thumb for some hours after printing. Set-off may be regarded as a printing process in itself, with the same essentials of inked and receiving surfaces, and pressure. Most of the pressures are much smaller than those used for printing purposes, as when the paper passes over a guiding bar or stands in a pile; and a great deal will depend on the contour of the printed paper under these conditions, but not so much on the microscopic irregularities as on the larger cocklings and, as is frequently observed, the amount of embossing.

On the proofing press we have found that by printing two papers together and then running them back between the block and cylinder with a smooth sheet interposed next to the print, part of the ink on the paper is transferred. The greatest rapidity with which this can be done is some 10 seconds, which is a longer interval than occurs with the second-impression cylinder, turner bars, and delivery on a rotary press. At the same time the papers which transfer the most ink in this test tend to give more set-off troubles in commercial printing. Dr. Bekk has devised an apparatus (*14*) in which the paper on a cylinder is printed with excess ink and then rotated against a reel of paper, when unabsorbed ink is transferred rapidly. After a few revolutions the transfer becomes negligible, and the weight remaining on the printed paper is a measure of absorbency; the time factor is cut down to 1/25 second. Oil penetration tests we have found to be a rough guide, but not by any means infallible, and, apart from the difficulty of obtaining

FIG. 7

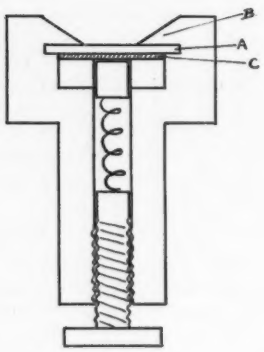

FIG. 8

a clear end-point to the test, the correspondence with printing press results remains to be proved.

Acknowledgment

I should like to acknowledge the valuable asisstance given by J L. Somerville in experimental work and the discussion of the various hypotheses; and my thanks are due to the directors of Messrs. A. E. Reed & Co., Ltd., for time and facilities for these investigations, and for permission to publish this paper.

Appendix A

APPARATUS FOR MEASURING THE COMPRESSION OF PAPER AT HIGH PRESSURES. (FIG. 7).

The paper A (in these experiments 20 or 30 thicknesses were used) is placed between two circular metal blocks, the lower one B just fitting over a burst tester diaphragm C while the upper one is held by the clamp. Pressure can thus be applied, and the relative movement of the blocks is communicated to a dial micrometer. To the upper disc is attached a tube which passes through a hollow clamp spindle and at the upper ends supports the body of the micrometer by means of a frame. The lower disc carries a rod which passes through a hole (or small slot) in the paper and then through the tube to make contact with the foot of the micrometer. The rod and tube screw out from the blocks to allow the various parts to be put in place on the Mullen, the tube passing through the clamp spindle. The sensitivity of the micrometer is 1/10,000 inches by estimation, and zero and other readings may be duplicated to well within ½ thou. If the paper is slotted it may be placed between the blocks without unscrewing the rod, and the small area removed can be allowed for reasonably well. By using a broad-testing Mullen, readings were possible to above 600 lb. per square inch.

Appendix B

APPARATUS FOR VIEWING THE SURFACE OF PAPER WHICH IS UNDER PRESSURE. (FIG. 8).

The glass plate A is held by the jaws B, which are shaped to allow a microscope objective to approach, while giving the maximum possible support to the glass. The sample C is pressed against the glass by the plunger, spring, and screw. The pressure can be determined from the compression of the spring, and so far it has been possible to go up to 100 lb. sq. inch. If an intense and narrow beam of light is projected on the end of the glass in a direction normal to the plane of the diagram, the points of contact between the paper and glass appear bright against a dark background.

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(17) Messrs. Harrild and Sons, Ltd., Norwich Street, Fetter Lane, London, E.C. 4.

Mason-Neilan Plans Field Demonstration

A new field demonstration service, believed to be the first of its kind and certain to be of outstanding value to large industries where instrumentation and control are major problems, was recently put into effect by the Mason-Neilan Regulator Company of Boston, Mass. The new service unit, a specially designed truck, completely equipped with up-to-the-minute reducing valves and control instruments, is making a nation-wide tour, giving demonstrations of modern control in important chemical plants, paper mills, refineries, process and power plants.

This demonstration unit makes it possible for plant executives, process men, power plant engineers and instrument men to bring themselves up to date on control. They can see, in a few minutes, what would otherwise require many miles of travel, and many days away from their plant. They can get first-hand information on the latest developments in temperature, pressure and flow control. Control valve compensators that prevent overcontrol, overheat protectors, drift compensators and frictionless duo-coil action are shown, all in operation.

The complete demonstration is under the supervision of a Mason-Neilan control engineer who discusses problems, answers questions, and gives ideas on cutting maintenance costs.

The unit is offered as a free service, no matter where it goes.

The large number of requests for demonstrations that have been received guarantees the success of the adventure, and has definitely established the truck as a permanent part of Mason-Neilan merchandising plans.

New York, Philadelphia, Pittsburgh, Toledo, Chicago, St. Louis, Tulsa, and Houston are some of the larger cities included on the itinerary.

Kalamazoo TAPPI Discusses Drying

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry met at the Park American Hotel, Kalamazoo, Mich., on Thursday evening, October 3.

Plans for the meeting to be held at the University of Michigan on November 16 and 17 were outlined by D. W. McCready.

Frank D. Libby of the Kalamazoo Vegetable Parchment Company presented a very thorough and interesting report of the fall meeting of the national organization at Atlantic City, N. J., in September. He described the visit to the Experimental Station of the Hercules Powder Company at Wilmington, Del.

Prof. McCready of the Chemical Engineering Department of the University of Michigan discussed the factors involved in the drying of pulp and paper. He developed the principles underlying the evaporation of water from pulp sheets, both by air drying and by means of the application of heat.

Refreshments were served and those present were taken on a trip through the Allied Paper Mills in Kalamazoo.

Those present were: R. B. Stewart and W. J. White of Kalamazoo Vegetable Parchment Company, Kalamazoo; M. R. Wilkins, Bryant Paper Company, Kalamazoo; Harold Heath, Rex Paper Company, Kalamazoo; A. B. Perlick, Reginald Hurst, John Wood, F. D. Libby, Hugh Smith and J. E. Bauman of Kalamazoo Vegetable Parchment Company; H. G. Doyen and I. E. Randall of Allied Paper Mills; H. C. Bradford, Rex Paper Company, Kalamazoo; F. S. Crane, Paper Makers Chemical Corporation, Kalamazoo; Alex Macvie, Kalamazoo; W. S. Taylor, American Cyanamid and Chemical Corporation; Archie Webb, Bryant Paper Company, Kalamazoo; H. E. Stafford, Hawthorne Paper Company, Kalamazoo; C. B. Smith, Huron Milling Company, Harbor Beach, Mich.; A. B. Milham, and W. B. Clements, Bryant Paper Company, Kalamazoo; Ralph Atkins and Arthur Weinland, Lee Paper Company; R. J. Egan, Bulkley, Dunton & Co., Chicago; Robert Van Peenan; H. M. Annis, Allied Paper Mills; D. W. McCready, University of Michigan, Ann Arbor, Mich. and W. F. Hathaway, Kalamazoo Vegetable Parchment Company.

Mutual Pulp & Paper Mills Buy Site

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., October 5, 1935—Reports from Ottawa of the sale of the floating dry dock, shipyards and lands at Prince Rupert, B. C., formerly owned by the Grand Trunk Pacific Development Company to Mutual Pulp and Paper Mills of Prince Rupert, Limited, are confirmed at the offices of Frank L. Buckley, 1030 Hamilton street, Vancouver, one of the most prominent principals of the pulp and paper company.

The sale was authorized by the Dominion Government, and under its terms the purchasers pay $500,000 for the property and forfeit a subsidy arrangement whereby the government has paid the development company $76,970 a year for operation of the drydock. The subsidy had a further life of seven years. The purchasers further undertake to continue the operations of the drydock and shipyards and to build a pulp mill.

Completion of these negotiations, it is understood, clears the way for actual development of the company's mill construction program. Other officials of the Mutual Pulp and Paper Mills of Prince Rupert, Limited, are E. A. Thompson, J. L. Stewart and Geoffrey Winslow, all of San Francisco, and L. A. Deguere of Wisconsin Rapids, Wis.

Rayon Handbook

Because of the interest of many pulp mills in the preparation of wood pulp for conversion to rayon the recent publication of a Handbook on Rayon and Synthetic Yarns is timely. It has 500 pages, 16 chapters, page size 5½ x 7¾ inches.

Rayon is the infant of all fibers in age but a giant in size. The consumption of silk, wool and cotton in the United States during 1933 was actually less than the consumption of these fibers in 1925. The consumption of rayon in 1933 amounted to 207 millions of pounds and was nearly four times as great as in 1925 and over three times the consumption of silk. Despite these strides there has been relatively little data printed about rayon, other than in trade paper articles. The handbook is the first comprehensive study of the rayon industry published in America.

Its authors are E. W. Swarz who is a textile chemist and editor of a trade magazine and H. R. Mauersberger who is conducting classes on rayon at Columbia University.

Of special interest to pulp makers will be the chapter on the rayon processes and cellulose. The greater part of the book deals with the treatment of rayon after it is made.

Copies of the Rayon Handbook may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 E. 42nd street, New York, at $3 per copy.

New York State TAPPI to Meet

The proposed New York State Section of the Technical Association of the Pulp and Paper Industry will meet at the Hotel Syracuse, Syracuse, N. Y., on Saturday, October 12.

Dinner will be served at 6:30 P.M. and will be preceded by an informal get-together immediately following the Cornell-Syracuse football game which will be attended by the TAPPI group.

John D. Rue of the Hooker Electrochemical Company will be the guest speaker and will talk on "Bleaching and Its Related Processes."

A large attendance is expected and an invitation is extended to anyone who may wish to attend.

Ohio TAPPI To Meet

The proposed Ohio Section of the Technical Association of the Pulp and Paper Industry will meet at the Manchester Hotel, Middletown, Ohio, on Saturday, October 19th at 6:30 P.M.

At this meeting C. C. Heritage, President of TAPPI, will be present to deliver the charter to the Section.

K. P. Geohegan of the Aetna Paper Company, Dayton, Ohio, will be one of the speakers.

Reservations for dinner should be made directly with V. F. Waters, Wrenn Paper Company, Middletown, Ohio.

A cordial invitation is extended to anyone who may wish to be present.

G. E. Orders Increase 34 Per Cent

SCHENECTADY, October 7, 1935—Orders received by the General Electric Company for the third quarter of 1935 amounted to $54,400,819, compared with $40,458,901 for the third quarter of 1934, an increase of 34 per cent, President Gerard Swope announced today.

Orders received for the nine months amounted to $158,943,765, compared with $132,613,543 for the nine months last year, an increase of 20 per cent.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 5, 1935

CIGARETTE PAPER

H. H. Strauss, Sarcoxie, Bordeaux, 560 cs.; Champagne Paper Corp., Sarcoxie, St. Nazaire, 275 cs.; DeManduit Paper Corp., Manhattan, Havre, 53 cs.

WALL PAPER

W. H. S. Lloyd & Co., Georgic, London, 3 bls.; S. K. Lonegren, Gripsholm, Gothenburg, 31 bxs.; ———, Berlin, Bremen, 4 cs.; ———, Manhattan, Havre, 12 cs.; ———, Tai Ping Yang, Yokohama, 1 cs.

NEWSPRINT

Bank of Montreal, Humberarm, Corner Brook, 2751 rolls; Perkins Goodwin & Co., Pr. Roosevelt, Hamburg, 180 rolls; Jay Madden Corp., Austcard, Kotka, 677 rolls; Lunham & Reeve, Inc., Austvard, Kotka, 225 rolls; Jay Madden Corp., Austvard, Viipuri, 375 rolls; H. G. Craig Co., Inc., Donnacona, Donnacona, 558 rolls; N. Y. Evening Journal, Markland, Liverpool, N. S., 246 rolls; N. Y. Tribune, Markland, Liverpool, N. S., 1746 rolls; World Telegram, Markland, Liverpool, N. S., 598 rolls; Bridgeport Herald, Markland, Liverpool, N. S., 53 rolls; Brooklyn Daily Eagle, Markland, Liverpool, N. S., 275 rolls; Washington Post, Markland, Liverpool, N. S., 312 rolls; Clinton Paper Co., Markland, Liverpool, N. S., 487 rolls; Jay Madden Corp., Columbus, Bremen, 131 rolls; H. G. Craig Co., Inc., Donnaco, Donnacona, 305 rolls; Perkins Goodwin & Co., New York, Hamburg, 145 rolls.

PRINTING PAPER

S. H. Pomerance, Georgic, London, 2 cs.; ———, Pr. Roosevet, Hamburg, 3 cs.; Steiner Paper Corp., Berlin, Bremen, 24 cs.; L. A. Consmiller, Berlin, Bremen, 1 cs.; MacMillan Co., Majestic, Southampton, 1 cs.; ———, Black Heron, Antwerp, 12 cs.; Japan Paper Co., New York, Hamburg, 2 cs.; E. Dietzgen & Co., Estrella, Marseilles, 12 cs.

WRAPPING PAPER

Guaranty Trust Co., Gripsholm, Gothenburg, 233 rolls; Blauvelt Wiley Paper Mfg. Co., Gripsholm, Gothenburg, 9 bls., 18 rolls; ———, Austvard, Kotka, 6019 rolls; Jay Madden Corp., Austvard, Kotka, 65 rolls; P. H. Petry & Co., Berlin, Bremen, 8 cs.; ———, Volendam, Rotterdam, 31 bls.; Haas Bros., Black Heron, Antwerp, 1 roll; Ace Paper Co., Black Heron, Antwerp, 2 rolls.

FILTER PAPER

P. H. Petry & Co., New York, Hamburg, 60 bls.

COLORED PAPER

International F'd'g Co., New York, Hamburg, 5 cs.

SURFACE COATED PAPER

L. A. Consmiller, Berlin, Bremen, 15 cs.; Hensel Bruckman & Lorbacher, Columbus, Bremen, 1 cs.; Gevaert Co. of America, Black Heron, Antwerp, 44 cs.; Metropolitan Importing & Manfg. Co., New York, Hamburg, 11 cs.

BARYTA COATED PAPER

Globe Shipping Co., Columbus, Bremen, 45 crates.

BASIC PAPER

Globe Shipping Co., Columbus, Bremen, 6 cs.; Globe Shipping Co., Bremen, Bremen, 59 crates.

METAL COATED PAPER

K. Pauli Co., Columbus, Bremen, 36 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Samaria, Liverpool, 30 cs. (duplex).

DECALCOMANIAS

Sellers Transportation Co., Columbus, Bremen, 7 cs.; Sellers Transportation Co., Bremen, Bremen, 8 cs.

TRACING CLOTH PAPER

C. Bruning Co., Inc., Columbus, Bremen, 21 cs.; Titan Shipping Co., Columbus, Bremen, 3 cs.

TISSUE PAPER

Irving Trust Co., Kwansai, Maru Kobe, 2 cs.

WRITING PAPER

Globe Shipping Co., Pr. Roosevelt, Havre, 5 cs.

ENVELOPES

Japan Paper Co., New York, Hamburg, 1 cs.

LITHO PAPER

International Printing Ink Corp., Noshiro Maru, Hong Kong, 10 cs.

PASTE BOARD

Phoenix Shipping Co., Berlin, Bremen, 42 cs.

TRANSPARENT PAPER

Cellulose Products Corp., Tai Ping Yang, Nagoya, 11 cs.

PAPER TUBES

———, New York, Hamburg, 40 cs.

MISCELLANEOUS PAPER

Corn Exchange Bank Trust Co., Kwansai Maru, Kobe, 39 cs.; National Pulp & Paper Co. Inc., Gripsholm, Gothenburg, 486 rolls; The Borregaard Co. Inc., Gripsholm, Gothenburg, 199 bls.; Japan Paper Co., American Trade, London, 1 cs.; Moller Products Corp., Kongo Maru, Yokohama, 9 cs.; H. Reeve Angel & Co. Inc., Kongo Maru, Yokohama, 7 cs.; U. S. Envelope Co., Kongo Maru, Yok-

ohama, 13 cs.; Keuffel & Esser Co., Manhattan, Hamburg, 107 rolls, 57 cs.; U. S. Envelope Co., Tai Ping Yang, Yokohama, 10 cs.; R. Wilson Paper Corp., Transylvania, Glasgow, 25 rolls; Jay Madden Corp., New York, Hamburg, 16 bbls.

RAGS, BAGGINGS, ETC.

Manufacturers Trust Co., Kwansai Maru, Shanghai, 200 bls. cotton waste; ———, Kwansai Maru, Osaka, 85 bls. rags; E. J. Keller Co. Inc., Pr. Roosevelt, ———, 131 bls. paper stock; Bank of The Manhattan Co., Pr. Roosevelt, Havre, 206 bls. rags, 56 bls. bagging; E. J. Keller Co. Inc., Sarcoxie, ———, 521 bls. rags; Amsinck Sonne & Co. Inc., Sarcoxie St. Nazaire, 123 bls. rags; ———, American Trade, London, 17 bls. rags; ———, Noshiro Maru, Shanghai, 100 bls. picker waste; S. Shapiro & Son, Cliffwood, Gdynia, 5 bls. rags; Van Oppen & Co., Black Gull, Rotterdam, 135 bls. bagging; E. J. Keller Co. Inc., Exochorda, ———, 267 bls. paper stock, 30 bls bagging; W. Steck & Co., Exochorda, Alexandria, 76 bls. paper stock; E. J. Keller Co. Inc., Columbus, ———, 78 bls. bagging; Jaffe Products Co., Yucatan, Havana, 169 bls. rags; Chase National Bank, Volendam, Rotterdam, 272 bls. rags; Darmsfadt Scott & Courtney, Black Heron, Antwerp, 260 bls. jute waste; G. W. Millar & Co., Black Heron, Antwerp, 117 bls. rags; Royal Manfg. Co., Black Heron, Antwerp, 96 bls. cotton waste; D. M. Hicks Inc., Black Heron, Antwerp, 41 bls. flax waste; W. Steck & Co., Black Heron, Antwerp, 81 bls. hemp waste; New England Waste Co., Kongo Maru, Kobe, 250 bls. cotton waste; E. J. Keller Co. Inc., Lafayette, ———, 115 bls. bagging; Bank of N. Y. Trust Co., Estrella, Seville, 88 bls. rags; S. Birkenstein & Sons, Estrella Alicante, 251 bls. rags; Bank of N. Y. Trust Co., Estrella, Valencia, 315 bls. rags; Chase National Bank, Estrella, Barcelona, 235 bls. rags; Banco Coml Italiane Trust Co., Estrella, Barcelona, 127 bls. bagging.

GLUE STOCK, ETC.

———, Berlin, Bremen, 40 bags hide glue; ———, New York, Hamburg, 200 bags hide glue; National Adhesives Co., New York, Hamburg, 120 bags ground glue.

CHINA CLAY

———, Samaria, Liverpool, 125 casks.

LACTIC ACID

Phillipp Bros. Inc., Volendam, Rotterdam, 25 carboys.

OLD ROPE

Banco Coml Italiane Trust Co., M. de Comillas, Vigo, 160 coils; Banco Coml Italiane Trust Co., M. de Comillas, Coruna, 41 coils; ———, M. de Comillas Vigo, 116 coils.

WOODPULP

New Haven Pulp & Board Co., L. A. Barnes, Bridgewater, N. S., 4654 bls. ground pulp, 14 half bales ground pulp; ———, Pr. Roosevelt, Hamburg, 150 bls. wood pulp, 17 tons; Gottesman & Co., Inc., Pr. Roosevelt, Czecho-Slovakia, 507 bls. wood pulp, 101 tons; Perkins Goodwin & Co., Gripsholm, Gothenburg, 140 bls. sulphate; Johaneson Wales & Sparre, Inc., Gripsholm, Gothenburg, 748 bls. kraft soda pulp; Lagerloef Trading Co., Austvard, Kotka, 1458 bls. sulphite, 260 bls. mechanical pulp; Lagerloef Trading Co., Austvard, Viipuri, 3048 bls. sulphite, 3025 bls. sulphate; J. Andersen & Co., Fred VIII, Oslo, 125 bls. sulphite, 25 tons; Lagerloef Trading Co., Cliffwood, Kemi, 160 bls. sulphate, 26 tons, 7775 bls. sulphite, 1305 tons; Bulkley Dunton & Co., Cliffwood, ———, 375 bls. sulphate, 75 tons, 500 bls. sulphite, 100 tons; Price & Pierce, Ltd., Cliffwood, Wallvik, 1350 bls. sulphite, 225 tons; M. Sone, Manhattan, Hamburg, 1168 bls. wood pulp, 177 tons; ———, Manhattan, Hamburg, 105 bls. wood pulp, 11 tons; Castle & Overton, Inc., New York, Hamburg, 2145 bls. wood pulp, 367 tons; E. J. Keller Co., Inc., New York, ———, 335 bls. wood pulp, 50 tons.

PULPWOOD

International Paper Co., Ravanger, Chatham, N. B., 2000 cords.

ESPARTO PULP

———, Transylvania, Glasgow, 42 rolls.

WOOD PULP BOARDS

Fibre Case & Novelty Co., Inc., Gripsholm, Gothenburg, 12 bls.; Lagerloef Trading Co., Austvard, Kotka, 111 rolls; ———, Austvard, Viipuri, 150 bls.

BOSTON IMPORTS

WEEK ENDING OCTOBER 5, 1935

———, Samaria, Liverpool, 275 bags hide clippings; G. F. Malcolm, Inc., Samaria, Liverpool, 18 cs. tissue paper; State Chemical Co., Black Gull, Rotterdam, 300 bags wood flour, 3000 kilos; Ayres W. C. Jones Co., Black Gull, Antwerp, 21 bls. cotton waste; E. J. Keller Co., Inc., Exochorda, ———, 75 bls. rags; Atkinson Haserick & Co., Exochorda, Genoa, 18 cs. paper; Bulkley Dunton & Co., Cliffwood, ———, 375 bls. wood pulp; Parsons & Whittemore, Inc., Cliffwood, ———, 375 bls. wood pulp; E. J. Keller Co., Inc., Capulin, ———, 69 bls. bagging.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 5, 1935

Lagerloef Trading Co., Austvard, Mantyluoto, 130 bls. mechanical pulp, 950 bls. sulphite, 167 bls. pulp boards; Jay Madden Corp., Austvard, Mantyluoto, 450 rolls wrapping paper; J. W. Hampton Jr. Co., Austvard, Mantyluoto, 151 rolls newsprint; Castle & Overton, Inc., Austvard, Viipuri, 1612 bls. wood pulp; Philadelphia National Bank, Sarcoxie, Bordeaux, 100 bls. rags; Castle & Overton, Inc., Sarcoxie, Bordeaux, 465 bls. rags; Castle & Overton, Inc., Sarcoxie, St. Nazaire, 292 bls. rags; Philadelphia National Bank, Sarcoxie, St. Nazaire, 192 bls. rags; E. J. Keller Co., Inc., Sarcoxie, ———, 1068 bls. rags; Gottesman & Co., Inc., Cliffwood, Iggesund, 135 bls. mechanical pulp, 245 tons, 1000 bls sulphate, 200 tons; Price & Pierce, Ltd., Cliffwood, Wallvik, 300 bls. sulphite, 50 tons; ———, Cliffwood, Gdynia, 1620 bls. wood pulp, 251 tons; Castle & Overton, Inc., Black Gull, Rotterdam, 300 bls. wood pulp, 60 tons; National Vulcanized Fibre Co., Black Gull, Rotterdam, 1084 bls. bls. rags; Chase National Bank, Black Gull, Rotterdam, 141 bls. rags; ———, Black Gull, Rotterdam, 228 bls. rags; Castle & Overton, Inc., Black Gull, Antwerp, 108 bls. rags; Chase National Bank, Black Gull, Antwerp, 114 bls. rags; ———, Black Gull, Antwerp, 218 bls. rags; E. J. Keller Co., Inc., Black Gull, ———, 273 bls. rags; ———, Clairton, Glasgow, 73 rolls esparto pulp; Iwai & Co., Noshiro Maru, Kobe, 20 cs. paper Iwai & Co., Kongo Maru, Kobe, 40cs. paper.

CAMDEN IMPORTS

WEEK ENDING OCTOBER 5, 1935

Lagerloef Trading, Co., Austvard, Viipuri, 5508 bls. wood pulp.

WILMINGTON IMPORTS

WEEK ENDING OCTOBER 5, 1935

Lagerloef Trading Co., Austvard, Viipuri, 1027 bls. sul-

phite; Castle & Overton, Inc., Austvard, Viipuri, 4017 bls. wood pulp; Lagerloef Trading Co., Austvard, Mantyluoto, 1705 bls. sulphite.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 5, 1935

Congoleum Nairn Co., Sarcoxie, Bordeaux, 892 bls. rags; Congoleum Nairn Co., Sarcoxie, St. Nazaire, 774 bls. rags; Northern Paper & Pulp Works, City of Newport News, Hamburg, 40 bls. wood pulp, 125 bls. sulphite; Gottesman & Co., Inc., City of Newport News, Sweden, 1986 bls. wood pulp; ———, City of Newport News, Hamburg, 350 bls. sulphite; Jay Madden Corp., City of Newport News, Hamburg, 156 rolls newsprint; H. J. Minkus, Nichiyo Maru, Yokohama, 176 cs. transparent paper; Congoleum Nairn Co., Black Heron, Antwerp, 470 bls. rags; Bulkley Dunton & Co., City of Baltimore, ———, 400 bls. wood pulp; Parsons & Whittemore, Inc., City of Hamburg, ———, 150 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING OCTOBER 5, 1935

Jay Madden Corp., City of Newport News, Hamburg, 234 rolls wrapping paper; ———, City of Newport News, Hamburg, 70 rolls newsprint; ———, Black Heron, Antwerp, 98 bls. rags; ———, Black Heron, Antwerp, 199 bls. bagging.

NEWPORT NEWS IMPORTS

WEEK ENDING OCTOBER 5, 1935

Bulkley Dunton & Co., Black Hawk, ———, 130 bls. wood pulp; Bulkley Dunton & Co., Tigre, ———, 4950 bls. wood pulp; Parsons & Whittemore, Inc., City of Hamburg, 300 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING OCTOBER 5, 1935

Gottesman & Co., Inc., Stureholm, Sweden, 2000 bls. wood pulp.

Union Bag Holds Sales Convention

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., October 7, 1935—A sales convention for representatives of the Union Bag and Paper Corporation was held here last week and was largely attended. The sessions were held under the direction of H. S. Daniels and William O. Rogers, of New York City, vice president and sales promotion manager respectively of the company, and lasted two days. About 50 salesmen from various sections of the Eastern division, which takes in the territory east of the Ohio River, were in attendance. Discussion of business topics comprised the greater part of the program followed by a banquet at a hotel in this city.

Excelsior-Paper Stock Incorporates

VANCOUVER, B. C., October 5, 1935—Excelsior-Paper Stock, Limited, have been incorporated at Victoria, B. C. Registered offices of the company are at 1531 Main Street, Vancouver. It carries on business manufacturing wood and paper excelsior and paper products, and is capitalized at $10,000.

Sweet Potato Starch Found As Suitable For Paper Sizing

An excellent starch for sizing printing papers can be made from cull sweet potatoes, according to the National Bureau of Standards of the Department of Commerce.

The starch was produced by scientists at the United States Department of Agriculture, and its value for paper sizing was studied at the Bureau to assist in finding uses for it. Use of the starch in the domestic paper industry, it is pointed out, would mean profitable utilization of at least a part of another farm waste with increased income for the farmer.

Corn and cassava starches, the latter an imported product, are widely used as beater sizings in book and catalogue papers to improve printing quality. The suitability of the sweet potato product for this purpose was appraised by making, in the Bureau's experimental paper mill, a series of book papers in which the sweet potato starch was used in comparison with representative commercial sizing starches made from corn and cassava.

The results obtained with sweet potato starch were equal to the best results obtained with the other starches with respect to strength and opacity of the papers, and superior with respect to retention of mineral filler, and "closing the sheet," as indicated by air permeability. Hence, the starch from cull sweet potatoes is apparently a high grade material for beater sizing, at least equal in quality to the best commercial starches commonly used for the purpose.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933

Of PAPER TRADE JOURNAL, published weekly at East Stroudsburg, Pa., for October 1, 1935.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Geo. S. Macdonald, who, having been duly sworn according to law, deposes and says that he is the Publisher of the PAPER TRADE JOURNAL and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Geo. S. Macdonald, 15 West 47th st., New York, N. Y.; Editor, Henry J. Berger, 15 West 47th st., New York, N. Y.; Managing Editor, Henry J. Berger, 15 West 47th st., New York, N. Y.; Business Manager, Geo. S. Macdonald, 15 West 47th st., New York, N. Y.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Lockwood Trade Journal Co., Inc., 15 West 47th st., New York, N. Y.; Stockholders: Geo. S. Macdonald, 15 West 47th st., New York, N. Y.; Arthur S. Zabriskie, 15 West 47th st., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is ——. (This information is required from daily publications only.)

GEO. S. MACDONALD.
(Signature of publisher.)

Sworn to and subscribed before me this 1st day of October, 1935.

BEATRICE TROMMER,
Notary Public, New York County.

(Seal.)

N. Y. Co. Clk's No. 80. Term expires March 30, 1936.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 9, 1935.

Conditions in the local paper market are showing signs of improvement. Demand for the various standard grades is persistent and the outlook for the closing months of the year is bright. Sales forces of the leading paper organizations continue optimistic. Prices are steady to firm.

The newsprint paper market is exhibiting a stronger undertone than for some time past. Manufacturing operations in the United States, Canada and Newfoundland are proceeding in sufficient volume to take care of current requirements. There is much talk around of higher prices for the forthcoming year.

Steadiness prevails in the fine paper market. Demand for cover, book, ledger and writing papers is well sustained. Prices are firm. Tissues are moving into consumption freely. The coarse paper market is fairly buoyant, with kraft wrapping paper in excellent request. The paper board market is steady.

Mechanical Pulp

The position of the groundwood pulp market is practically unchanged. Production in the United States, Canada and abroad is practically keyed to consumption and stocks at the mills are not excessive. Prices of mechanical pulp are generally holding to formerly quoted levels and shading is infrequent.

Chemical Pulp

Supplies of chemical pulp are moving into consumption in satisfactory volume for the time of year. The bright particular feature of the market is the continued strength of kraft pulp, on which recently increased prices are holding up well. Bleached and unbleached sulphite are also displaying strength.

Old Rope and Bagging

The old rope market is listless at present. Demand for both domestic and imported manila rope is restricted. Old rope prices, however, remain unchanged. The bagging market is fairly active. Both gunny and scrap bagging are firmer, due to heavy western purchases. Roofing bagging remains unchanged.

Old Rags

Paper mill interest in the domestic rag market is more in evidence. Demand for new cotton rags is better and several grades are decidedly firmer. No. 1 white shirt cuttings are now quoted at from 6.25 to 6.50 and new unbleached at from 7.00 to 7.50, f.o.b. New York. No radical changes have transpired in the imported rag market.

Waste Paper

The paper stock market is irregular. Demand for the lower grades of waste paper is only moderately active and prices are easier. Strictly folded news is now offered at from .25 to .27½ and No. 1 mixed paper at from .32½ to .35. The higher grades of waste paper, however, are holding to schedule, without difficulty.

Twine

Business in the local twine market is fairly lively. The movement into consumption is gradually expanding, with the increase of wrapping paper orders, which invariably takes place at this time of year. In some instances quotations have advanced. Fine India is now selling at from 18½ to 22½.

Constructing Paper Mill at Athlit

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 9, 1935—A paper mill is being constructed at Athlit on land leased from the Palestine Jewish Colonization Association, according to reports from Vice Consul Arthur L. Richards, Jerusalem. The site is between the railway and the shore. The machinery for the mill has already been brought in and the construction of the building begun. The mill will produce wrapping paper and paper for envelopes. Raw materials utilized will consist of waste paper and rags. It is also reported that the Oriental Paper Works, which have been operating at Tel-Aviv since 1929, are to be transferred to Athlit and will be operated in conjunction with the new mill, which is expected to be in shape to commence operations at the end of the current year.

British Columbia Looks for Lumber Gain

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., October 5, 1935—A gain of between $4,000,000 and $5,000,000 in the value of British Columbia lumber and timber products for the present year is unofficially anticipated, if the performance of the first seven months be maintained until the end of the year. Announcement to this effect was made recently from Victoria.

The expected gain would take place in spite of interference with the normal movement of exports to Japan, both in pulp and lumber. Slow sales on the Prairies and continued loss of a very large internal market once open on this continent have contributed to the unfavorable factors in the industry, which have, however, failed to hold back the bulk production in the province.

New Baldwin Paperweight Calculator

The Baldwin Paper Company, 233-45 Spring street, at Varick street, New York, has just issued the new Baldwin Paperweight Calculator which is certain to prove a valuable aid for quick reference in any plant or office where paper for printing purposes is bought or specified. The book contains 48 photo-lithed pages on Howard ledger, white 48 substance and the attractive cover is done in gold on Riegel's popular Leatherette, black heavyweight. Three pages in the front of the book tell a brief yet quite complete story about the Baldwin Paper Company, Inc., but will not disturb the reader's interest in the remaining pages of the book. The Baldwin Paperweight Calculator is being distributed with the compliments of the company to all concerned with the graphic arts.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 9, 1935.

BLANC FIXE.—Steadiness prevails in the blanc fixe market. Prices are holding to previously quoted levels. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Shipments against contract are moving with regularity. Prices are holding up well. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is firm. Domestic standard ground is quoted at 12 and finely ground at 12½; French standard ground at 12½ and finely ground at 13; Argentine standard ground at 13 and finely ground at 13½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Conditions in the caustic soda market are favorable. The contract movement is well up to average. Solid caustic soda is still quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is fairly active. Prices are holding to schedule, in most instances. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at mine.

CHLORINE.—Paper mill demand for chlorine is fairly persistent. Contract shipments are proceeding in good volume. Prices are steady to firm. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is stronger. Paper making gum rosin is now quoted at $4.45 and wood rosin at $4.20 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.58 per 100 pounds, in tank cars, at works.

SALT CAKE.—Supplies of salt cake are moving into consumption freely. Prices remain unchanged. Salt cake is quoted at from $12 to $13; and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a fairly strong undertone. Demand from the paper mills is well sustained. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—Business in the starch market is satisfactory for the time of year. The contract movement is normal. Prices remain unchanged. Special paper making starch is quoted at $3.59 per 100 pounds, in bags; and at $3.86 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—No radical changes transpired in the sulphate of alumina market. Prices are holding to schedule. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Demand for talc is moderately active. The contract movement is average. Prices are steady and unchanged. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Northern	4.12½	@	4.75
Standard	4.00	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	32.50	@	35.00
Chip	32.50	@	35.00
Sgl. Mla. Ll. Chip	45.00	@	47.50
Jute Lined Chip	45.00	@	47.50
White Patent Coated	55.00	@	57.50
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00

(F. o. b. Mill)

No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.60	@	—*
Division 2	2.55	@	—*
Division 3	2.50	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.05	@	—*
Other Than Easy Bleaching—			
Class 2. Higher than Standard	2.00	@	—*
Class 3, Standard	1.95	@	—*
Class 4, Lower than Standard	1.90	@	—*

(On Dock, Atlantic Ports)

Kraft No. 1	1.75	@	1.80
Kraft No. 2	1.60	@	1.70

(F. o. b. Pulp Mill)

Kraft Domestic	1.75	@	1.80

(Delivered)

Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.25	@	6.50
Silesias No. 1	4.50	@	4.75
New Unbleached	7.00	@	7.50
New Soft Blacks	3.00	@	3.25
Blue Overall	4.25	@	4.50
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.55	@	1.60
No. 2	1.30	@	1.35
No. 3	.95	@	1.00
No. 4	.95	@	1.00
No. 5A	.90	@	1.00

Foreign Rags

New Rags

New Dark Cuttings	1.75	@	1.85
New Mixed Cuttings	1.80	@	1.90
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.95	@	2.05
Dark Cottons	1.50	@	1.60
Old Shopperies	1.00	@	1.05
New Shopperies	.95	@	1.05
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.70	@	1.80
Domestic	1.50	@	1.60
Wool Tares, light	1.65	@	1.70
Wool Tares, heavy	1.75	@	1.80
Bright Bagging	1.65	@	1.70
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.45	@	2.55
Ordinary Hard White No. 1	2.10	@	2.15
Hard White No. 2	1.90	@	2.00
Soft White No. 1	1.70	@	1.80
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.75	@	.80
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.30	@	1.35
Strictly Overissue	.60	@	.65
Strictly Folded	.32½	@	.35
No. 1 Mixed Paper	.25	@	.27½

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Any Metal Any Perforation

The Harrington & King PERFORATING Co.
5657 Fillmore St., Chicago, Ill. 114 Liberty St., New York, N.Y.

Twines

(F. o. b. Mill)

Coarse Polished—			
India	.12¼	@	.14¾
Belg. White Hemp	.13¼	@	.16¾
India Compress	.12¾	@	.13¾
Fine Polished—			
Fine India	.20½	@	.22½
Special	.18½	@	.20½
Unpolished—			
Box	.11	@	.11½
Paper Makers	.08	@	.13
Tube Rope	.09	@	.14½
Wall Paper	.10	@	.13½
Wrapping	.13½	@	.19½
Special	.13½	@	.14
Soft Fiber Rope	.11¼	@	.11¾

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	41.00	@	—
Sheets, open	46.00	@	48.50
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.30	@	.35
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06-9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.12
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Book, M. F.	.05¼	@	.06¼
Book, S. S. & C.	.05½	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¾	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.75	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.40	@	1.75
Best Tarred, 3 ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O. D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.50	@	—
Print Manila	.50	@	.60
Container Manila	—	@	.50
Old Kraft	1.00	@	—
No. 1 Mixed Paper	—	@	.30
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.55	@	—
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¾	@	.11
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.04¼	@	.04¾
(F. o. b. Boston)			
Southern Kraft	.03½	@	.04¼
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Chip Board (Creasing)	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.20
No. 1 Soft White	1.75	@	1.90
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.40	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.30	@	1.40
No. 1 Old Manila	.60	@	.65
White Blank News	1.25	@	1.30
No. 1 Kraft	1.10	@	—
Mixed Papers	.25	@	.27½
Print Manila	.50	@	.60
Container Manilas	.27½	@	—
Old Newspapers	.27½	@	.30
Overissue News	—	@	.35
Box Board Chips	—	@	.25
Corrugated Boxes	.35	@	.37½
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	1.80	@	1.90
Domestic	1.50	@	1.75
Transmission Rope	.90	@	1.00
Jute Rope	1.50	@	1.60
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.85	@	1.90
Domestic	1.50	@	—
Bleachery Burlap	4.00	@	4.50
Scrap Burlap—			
Foreign	1.85	@	1.90
Domestic	1.60	@	—
Scrap Sisal	1.30	@	1.35
Scrap Sisal for Shredding	1.35	@	1.50
Wool Tares, heavy	1.75	@	1.85
New Burlap Cuttings	1.75	@	1.90
Australian Wool Pouches	2.50	@	2.75
Heavy Baling Bagging	1.75	@	2.00
Paper Mill Bagging	1.25	@	—
Bagging No. 2	.90	@	.95

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1	.06	@	.06¼
New White No. 2	.04	@	.04¼
Silesias No. 1	.04½	@	—
New Black Silesias	.02½	@	.03
Soft Unbleached	.06½	@	.06¾
Blue Cheviot	—	@	4.65
Fancy	.0195	@	.021
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	.04½	@	.04¾
New Black, soft	.04	@	.04¾
Khaki Cuttings	.03½	@	.03¾
O. D. Khaki	.03	@	.03¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06¼
Paper Mill Bagging	1.10	@	1.25

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.50	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	2.50	@	3.00
Roofing Stock—			
No. 1	1.50	@	1.60
No. 2	1.35	@	1.40
No. 3	1.05	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.55	@	1.60
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.90	@	—
Old Linsey Garments	2.10	@	—
New Silesias	4.75	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers (sulphite)—			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	5.50	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	5.25	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	44.50	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

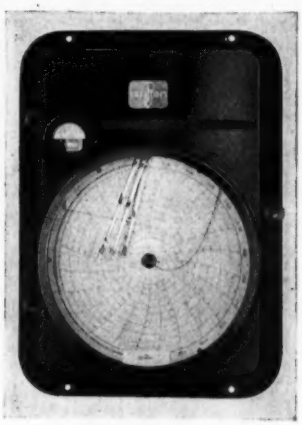
Shavings—			
White Env. Cut	2.00	@	2.30
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	.60
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.60	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06	@	—
Fancy Shirt Cuttings	.02	@	—

BRISTOL'S *New* FLOW METER



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for recording, controlling, integrating and indicating flow of steam, gases and liquids

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